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MAY-JUNE 1950

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ALAN DEVOE is the author of four books of nature-studies: "Pbudd Hill," "Down to Earth," "Lives Around Us," and the recently-published "Speaking of Animals." He is contributor to more than a hundred magazines, including *The Atlantic Monthly*, *Reader's Digest*, *Country Gentleman*, *Saturday Review of Literature* and *The American Mercury*. He is a Contributing Editor of *Audubon Magazine*.

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*A bimonthly devoted to the protection and preservation of our native wildlife.
Fifty-first year of continuous publication.*

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COVER: Photograph of white-breasted nuthatches by Samuel A. Grimes. Both parents tend the young ones, and for some time after the youngsters leave the nest, the little family keeps together. Eventually they scatter and roam the winter woods in company with chickadees, woodpeckers and brown creepers. The nuthatch habit of pushing seeds into a crevice and then "hatching" them open with its bill, has given the bird its name.

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INDEXED IN THE READER'S GUIDE TO PERIODICAL LITERATURE

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Letters

Florida Bald Eagle Threat Growing

In my article in the January-February 1950 issue of *Audubon Magazine*, I reported that 1949 was a poor nesting season and that I banded only 60 eagles. When I tell you that I banded only 25 this nesting season of 1950, you will readily understand that I have very discouraging news. My observations cover 92 nests as compared with 108 for the previous season, and it does not make good reading.

Of 92 nests under observation, only 23 produced young, a loss of 69 nests, or a 77 per cent nesting failure!

Here is a breakdown of the 69 nests lost this year:

Birds around but did not lay eggs.....	30
Nested but eggs did not hatch.....	19
Trees with nests, cut.....	4
Young disappeared from nest (or shot).....	3
Great horned owls took nests.....	7
No old birds returned to claim nests.....	6
	69

Immediately the question comes up—"What is the cause of all these nesting failures?"

I have come to the conclusion that the extremely hot and dry weather of 1949 and 1950 caused the eggs to addle. All the nests were bone dry and dusty and lacking the necessary moisture for good incubation.

Surely, it cannot be possible that all these birds are becoming old and sterile. Young birds must be replacing them continually, yet I have seen only two adults wearing my bands. There should be some 600 birds (now adults) carrying my bands that I put on over five years ago. What has become of them?

Another disturbing thought is that I have seen less than a dozen immature eagles this season—I refer, of course, to birds over a year old. Around 1944, near Englewood, Florida, I counted 12 young birds in sight at one time and saw several every day, many of them wearing my bands.

Coming back to the subject of nesting failures, we wonder why 30 pairs of birds did not nest this season. Many of these birds are continually disturbed by building, lumbering, and farming activities, but some nests are inactive for no apparent reason. I sometimes wonder if

Turn to Page 141

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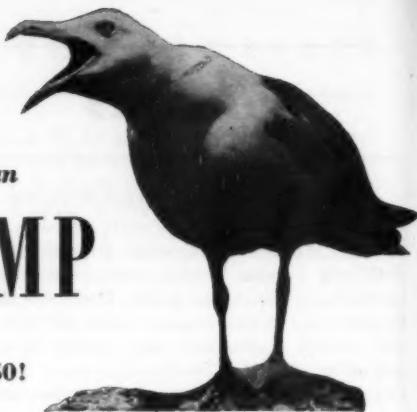
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the higher than normal temperatures of the past two nesting seasons have any bearing on this. We cannot control the temperature but every citizen of the United States of America and Canada should do all in his power to protect and preserve this fine bird.

I think that the fines imposed for shooting an eagle are altogether too small. In Ontario, Canada, the minimum fine that I have seen collected was \$50. In that province, it is a major offense to shoot an eagle.

One would expect this to apply also in the U.S.A.—the bald eagle being its national emblem—but the heaviest fine I have heard of in Florida was \$10 and costs. I realize, however, that there may have been heavier penalties imposed in other states that have not come to my attention.

Many magistrates and game wardens are altogether too lenient in this matter and they should give it some thought and take a more sensible and serious view of the fact that their national bird is rapidly decreasing.

CHARLES L. BROLEY

Tampa, Florida

Feeding Young Or Injured Birds

After reading Peggy Mowery's "Comical Downy—Clown of the Woods," it seems she might be qualified to make up a pamphlet (providing *Audubon Magazine* doesn't already have one) on what to do with either baby or injured birds. I have had people call me to say they have a bird on their hands and want to know what to feed it, how to handle it, and if they should force feed. It is very embarrassing as a member of the National Audubon Society not to be able to give them a satisfactory answer.

MRS. CHARLES MEEK

South Bend Audubon Society
South Bend, Indiana

(Editors' Note: In our May-June 1949 issue an article, "Care and Feeding of Wild Birds," gave rules on how to become a successful foster-parent to fledglings and injured birds. An attractive reprint of this article, selling for ten cents, may be ordered from our Service Department.)

Family Nature Camp

Oglebay Institute, a non-profit organization of Wheeling, West Virginia, is conducting this year a nature camp designed especially for family groups. Activities, planned by a compe-

Continued on Page 204

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"In sun-warmed ravines, hardwoods open their blossoms." Photograph courtesy U. S. Forest Service.

Spring

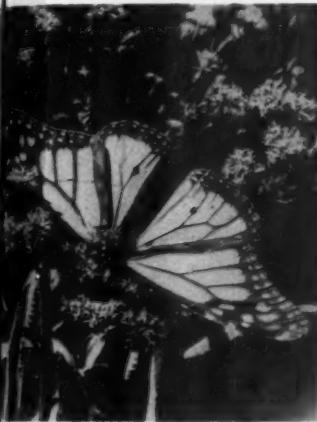
By Haydn S. Pearson

MAY rolls across the countryside with the power and urgency of a making tide. After a cold, hesitant April it sometimes seems as if spring arrives overnight. It is a test of man's patience if spring be tardy; but the heart-stir of May is worth the waiting. Only a few days ago the "fiddleheads" were tightly curled along the rutted, pasture lane; now they are graceful, fully-opened fronds. Violets blossom beside brook banks and cinquefoils' yellow blossoms star the lowlands. Wild strawberries open their large white petals on the south sides of slopes and the countryman makes mental note of the patches he should visit in June.

The wave of warblers begins to arrive in the northland; the flash of scarlet tanagers and indigo buntings is proof that new season is here. Each dawn the bird chorus rehearses, building toward the crescendo climax that marks the morning symphonies of early June. Any day now the Baltimore orioles' piercing whistles will sound and almost drown out the plaintive carols of the bluebirds and cheerful trills of song sparrows.

A gentle May rain does not turn a man against the weather as does an April rain. A day or two of warm moisture and the eager season seems to leap forward a fortnight. This is rush time on the land. The monotone song of tractors echoes from the fields as slices of moist, glistening soil are

"Suddenly one realizes that spring has arrived." Photograph of monarch butterfly by E. M. Rodgers.



"Daisies are thick in the fields." Photograph by Michael Pakeltis.



Tide

carved from earth's breast. Farmers who use horses chivvy their teams onward; at furrow's end men rest a few minutes and look at greening fields and meadows and lift their eyes to distant mountains dark green against blue sky.

There are two memorable nature paintings in the fifth month. When hardwoods open their blossoms on hillsides and ridges, there is a spreading canvas of soft shades of gold and chest-

nut, reds and orange, yellows and purples, violet, thin blues and steel grays blended into one harmonious whole. Only for a brief time does the beauty last; but for a few poignantly beautiful days one is reminded of a misty Corot. When the pastel shades fade there is a symphony of greens as starting leaves break bud scale shackles and begin a season's growth. The greens cover a wide range of hues; for a few days the trees are bouquets

"This is a rush time on the land." Photograph courtesy South Dakota State College.



of frosted grays and silvers. Each 24 hours the hue deepens. Suddenly one realizes the full glowing green of spring has arrived.

Toward month's end there is pink and white glory when apple trees open their buds and loose their fragrance in sun-drenched air. Straw-colored blossoms hang from graceful, curving stems of Solomon's seal; waxy, white blooms of May apples peep from beneath glossy, umbrellalike leaves. The hobblebush holds its flat clusters of white flowers in the woodland and the striped maples' yellow flowers droop in graceful racemes. The oven-bird's "teacher! teacher! teacher!" echoes along quiet woodland aisles and the hoarse challenges of pheasant cocks proclaim they are on guard while mates brood on the nests.

There is an elemental fragrance on

"The oven-bird's song echoes along woodland aisles and bumblebees push long tongues into red clover flowerets." Photograph of ovenbird by Roger Tory Peterson; of bumblebee by Lynwood M. Chace.



the land during the second half of May. The fruit blossoms and lilacs, the warming earth with its rich primal smells of humus and mold, the starting leaves and first grass growth combine to make a perfume that man cannot equal with test tubes and crucibles. And then one day when a man kneels to the soil in his garden and tests a handful, he knows the time has come for placing seeds in earth's breast. Some there are who know that faith is greater than knowledge; men go forth, prepare the land and plant seeds in full confidence that in due time the harvest will be waiting.

June is the high tide of the year. Nature's timetable is geared to the daylight hours. This is the month of the Long Day Pageant. On the longest day of the four seasons probably



more flowers are open than in any other 24-hour period. Honey bees drive themselves from the time the morning moisture is gone until dark; butterflies dance in the sun and bumblebees sway upon red clover flowerets.

At the beginning of the month there is the heart-stirring bird symphony at dawn; day by day it diminishes as the birds concentrate on housekeeping duties. Mornings are dew-pearled and shaggy fog blossoms hover over the lowlands until the sun has climbed into the sky. Green lines of corn, potatoes and beans make symmetrical patterns on brown fields; hardwood ridges are deep green now and the tide has rolled over thin-soiled sidehill mowings and boulder-studded upland pastures. Starting green fruits have begun to swell on apples and pears, peaches and plums. Mullein stalks with yellow blossoms on sturdy spikes stand like sentinels along the roadsides. Daisies are thick in the fields and nod companionably to black-eyed Susans. Baby skunks stolidly follow their mothers across farm lawns in the

dusk and young, plump woodchucks explore the clover patch.

If one sits quietly in a meadow toward the end of the month on a sunny day, he can hear one of the most beautiful harmonies of all nature. It takes a few minutes for one's ears to grow attuned; then he hears the faint, throbbing hum of bees and insects, the steady song that is the never-failing voice of life itself.

When the hours of daylight end, dusk crawls reluctantly down from the heights and moves across the fields. Granite mountain peaks glow with amber and red, gold and purple long after the sun has disappeared. Darkness thickens slowly as the year nears the time of the solstice. One by one the distant hills are curtained off; one by one the fields are darkened. Through the warmth of a June night comes the poignant cry of the whip-poor-will. This is the climax of spring. And man, groping his way to the peace that nature offers as an example, feels his kinship with a great spirit—a spirit that shall never, never die.

VIRTUES IN BIRD MUSIC

"There is a peculiar virtue in the music of elusive birds. What one remembers is the invisible hermit thrush pouring silver chords from impenetrable shadows; the soaring

crane trumpeting from behind a cloud; the prairie chicken booming from the mists of nowhere; the quail's Ave Maria in the hush of dawn."—Aldo Leopold, "A Sand County Almanac."

• • •

Watchful Waiting

"The instinct of animals, both predators and preyed upon, for waiting in vegetative blankness is beyond the patience of all but a few human beings. The spider at its web and the fawn motionless all day long in its grassy bed, except when its mother comes to suckle it swiftly, are characteristic of the

whole animal world. On tireless wings, sweeping the ground of whole townships with telescopic eye, the buzzard 'awaits the will of God' with no more apparent restiveness than the bud awaits sap and sunshine to unfold it into leaf."—J. Frank Dobie, "The Voice of the Coyote."

FOR THEAS

Photograph of ponderosa pines, courtesy National Park Service.



HEASKING -

A New World

**At the Audubon Camp
of California, a visitor
makes a striking discovery**



"We started out from Sugar Bowl Lodge."



"At first, campers are shown what is in the forests, the meadows and streams." Photograph by Fred Lyon.

By Betty Emblen

ONE hot July day last summer, my husband and I made one of our periodic excursions along a five-mile stretch of curving beach which runs in front of our southern California home.

In our journal that night we noted that we had seen several gulls, a pelican, and a few crabs and small fish in tidepools.

Three weeks later, after a stay at the Audubon Camp of California, we repeated this trip, covering the same stretch of beach in about the same pe-

riod of time. This time we found, living in those same five miles, almost enough wildlife to fill an entire book!

Virtually at our front door we now saw willets, curlews, least sandpipers and godwits, as well as gulls. Farther down, under the cliffs, we found cliff swallows, black turnstones, surfbirds and terns. Cormorants shared the air with the pelicans. Tiny red shrimp-like crustaceans, washed up on the shore, lay everywhere, along with "By-The-Wind-Sailors," related to the Portuguese man-of-war, and hoppers, sandfleas, and beetles. Beach sowbugs covered the barren cliffs, and the tide-pools were now a whole community of life, with limpets, urchins, anemones, sculpins and clingfish living with the crabs and perch.

In short, we discovered that our narrow beach had turned into a whole new world between the time of our first and second excursions.

This remarkable change was not due to any sudden influx of wildlife onto our beach. The transformation had occurred wholly within ourselves,

and was due to our spending two profitable weeks at a unique educational and recreational institution—the Audubon Camp of California.

From a couple of typically unob-servant sunbathers who were more aware of abandoned beer cans on their beach than of rarely jeweled shellfish, this remarkable experiment in outdoor education turned us into begin-ning naturalists.

In two weeks, expending no more effort than we would have in any ordinary mountain vacation, we picked up more natural history than we had heretofore absorbed in an entire life-time. We had seen and studied the habits of more birds, mammals, insects and plants than we had known the names of before, and found that we had a working knowledge of the naturalist's art sufficient to carry on our own study at home or to instruct scout and campfire groups in natural history and conservation.

That an Audubon Camp was able to cram so much knowledge into us so painlessly and so quickly is prob-



"Bird walks took us through a meadow and up a hillside to listen to bird songs, to note bird markings and flight patterns." Photograph of sugar pine, courtesy National Park Service; of pine siskin by Hugh M. Halliday.



ably due to the institution's 13 years of experience in making nature study interesting to those who know little about it.

Although long identified solely with bird-enthusiasts, the 45-year old National Audubon Society is not a single-faceted organization. It has, in the past 15 years, turned its attention to nature as a whole, in the belief that unless our wasteful country learns how to appreciate and use its total natural resources — and learns it quickly — it will one day be as barren as a dust bowl.

It was with the idea of facilitating public education that four Audubon camps have been established. Our particular camp, at historic Donner Pass in the high Sierra of California, opened in 1948. The Audubon Camp of Maine, the oldest, was started in 1936; the third, at Greenwich, Connecticut, is well known to many easterners and others who have been going there each summer since it was established in 1944; the fourth—the Audubon Camp of Texas at Kerrville

"We spent three 2-hour periods each day examining every form of life we came upon." Photograph by John Harville.

—has been turning laymen into naturalists since 1948.

Programs of all camps are similar, except that campers concentrate on the plants and animals native to the region. Campers are housed in comfortable cottages or dormitories; serve, but do not cook, their own meals; keep their own rooms in order, and fill in their free time with the traditional camping activities such as swimming, hiking, campfires and songfests.

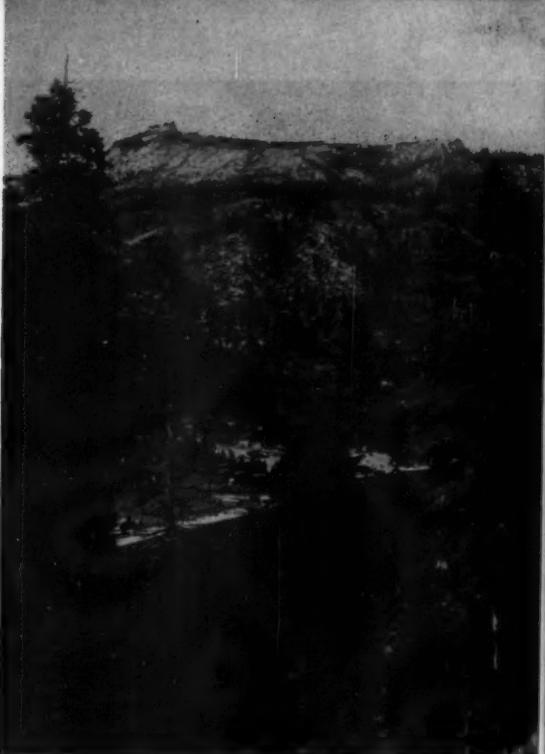
Classes under the instruction of experts on mammals, birds, plants and insects, are almost entirely out-of-doors, and are kept extremely informal. Plants and animals are studied ecologically, that is, each is studied always in relation to other animals and plants that live around it, feed upon it, are fed upon, or are protected by it. In the main, the Audubon camps have two goals:

1. That every camper shall learn enough about the things he finds in nature to recognize and appreciate the wonders of his natural environment.
2. That he shall learn enough about nature to understand what happens when individuals or nations fail to comprehend the biological conse-





"One morning, a class may start out by sitting on logs to study a nesting junco. It may end 30 miles away in Desolation Valley where the rare flame-like snow plants bloom beyond the receding snow." Photograph of Oregon junco by H. D. Wheeler; Donner Lake (right) courtesy Southern Pacific Railway; Donner Summit (below) photographed by Fred Lyon.



quences of using our natural resources unwisely.

Since, from a practical viewpoint, being able to appreciate one's immediate natural environment comes first, the primary objective is to teach campers what is in the meadows and forests and streams about them.

Campers are started on this type of study immediately and in the most effective way possible. In the first class, everyone ranges about some small stream or meadow and then sits quietly — with instructions to open eyes, ears, nose and sense of touch, and note everything that comes into their consciousness.

Simple though it is, this is a rare experience for most adults, for strange things happen when one merely sits still beside a stream and looks and lis-



"Audubon campers soon find that no single animal or plant can be studied without learning something about its associates; that every form of life depends for its living upon something else." Photograph of Ceanothus or "buck brush," courtesy National Park Service; Audubon camper studying pond life, photographed by H. Kitchen, Jr.

tens and feels. You note that pine trees, which look perfectly motionless, describe gentle circles in the air with their tops. Your attention becomes riveted on a small clump of grass and, like Alice in Wonderland, you imagine yourself the size of ants and mites, whizzing up grass blades and falling off the ends.

Or, if you watch the sluggish back-water of the stream, you see numerous beetles turning somersaults through the shallow depths, others laying eggs on the bottom, countless others skimming the top, floating on tiny stick rafts, or lying almost covered up in the warm bottom mud.

In a similar experiment, a cubic foot of earth is dug out of a forest, swamp or meadow and sifted through a screen to determine what forms of life inhabit it. It is always a source of wonder and astonishment to the



neophytes to find what goes on unseen under their feet. One discovers that every inch of ground, no matter how bare, is actually teeming with life. Since few of us can resist the childhood urge to investigate any form of life we see, no matter how insignificant, the first hurdle in our nature education has been passed. When we sallied forth the second day, we saw at least ten times as much around us as we did on the first day.

Now that our eyes and ears had been opened, we were divided into small groups of 10 or 12 to each instructor, and spent three 2-hour periods each day hiking about the surrounding meadows and lake shores, wading in streams, or poking about fallen trees, examining every form of life we came upon.

Bird walks took us off through a meadow or up a hillside, each of us armed with field glasses, to study silhouettes, to listen to bird songs and calls, to note markings and flight patterns of thrushes and sparrows, and to seek out the brilliant western tanager, Clark's nutcracker, and the green-tailed towhee. Insect classes took us to a fallen stump to dig for beetles, or into the stream, turning up rocks and snaring the current with nets for the beautiful May fly which lives only a day, or that most adaptable of animals, the cross-eyed flatworm, which can grow a new head or tail on almost any segment of flesh cut from its body.

Mammal study lures the campers to where the burrows of Belding ground squirrels and California ground squirrels inhabit the same field, the home of one to be identified by its clean burrow entrance, the other by the litter outside its door.

Because nature study is so broad and must be covered adequately with-

in a limited time, the campers study many branches of it in each session. One morning a class may start out by sitting comfortably on logs around a stump to study and record every move of a nesting junco. It may end 30 miles away, in Desolation Valley, where the rare flamelike snow plants bloom beyond the receding snow. It may start out as a bird walk, but may include a visit to a nearby bed of queer elephant-head flowers; a stop to watch the camp pet, a large marmot, sunning itself on a log; a detour to chase a butterfly whose name someone wants to know; or a halt to corner and temporarily cage a bumbling porcupine for closer study in a camp class.

For, as Audubon campers soon learn, nothing in nature can be stud-

"In two weeks, we had studied more birds, mammals, insects and plants than we had known the names of before." Photograph of Audubon campers in Sugar Bowl Lodge dining room by Fred Lyon.



ied by itself, because every form of life depends for its living upon something else, and sometimes several other things. And in turn some other form of life — or several — are dependent upon it.

To show how this interdependence of life creates a sort of balance in nature—and how man must manipulate it wisely—is the second important goal of the camp. In their study trips into forest and desert, campers are shown how this works; how one type of plant, say a corn lily, always maintains certain families of aphis on its stem and leaves which are dependent on it for food; how certain birds nest near a meadow where corn lilies grow because they feed on this particular kind of aphis; how larger predators come to the meadow to feed on the bird which feeds on the aphis, and so on.

Emphasis is put on showing what happens when this delicate balance of nature is upset. Campers are taken to areas where overgrazing has destroyed not only the range itself, but has left countless abandoned nesting places around its edge—signifying that certain species of birds have been forced elsewhere because food and cover has here been destroyed. Classes are taken to other areas where fire has ravaged the forest and are shown how nature has to repeat the age-old evolutionary cycle from sedge to grass to flowers to shrub and tree, in order to reforest the area. In other places they

are shown the reverse, where a bounty on coyotes has reduced the predatory control of rodents to the extent that they are overrunning the country and menacing crops.

The most solid lessons for the individual camper are found in the devices which equip him to carry on his own nature study at home. He is introduced to the pattern of life zones, the amazing natural divisions of plants and animals due to moisture, altitude and temperature. Each of these biological areas contains its own typical plants and animals which act as signposts to those who have learned to read, pointing out what associated plants and animals to look for.

The Audubon camper is taught to use keys which help him trace down any plant, bird or other animal he may meet in his travels. Other questions, from "how to stuff an animal" to "how to make a marine aquarium," are answered by one of the camp's staff of naturalists.

Since time is short, broad, fundamental lessons only can be planted in the camper's mind, to be studied and thought about after he goes home. Every camper, however, takes back a mental image of a world expanded into proportions he never dreamed of. As in our second walk along our little stretch of California beach, when we made great new discoveries, most campers take home a whole new world to explore.

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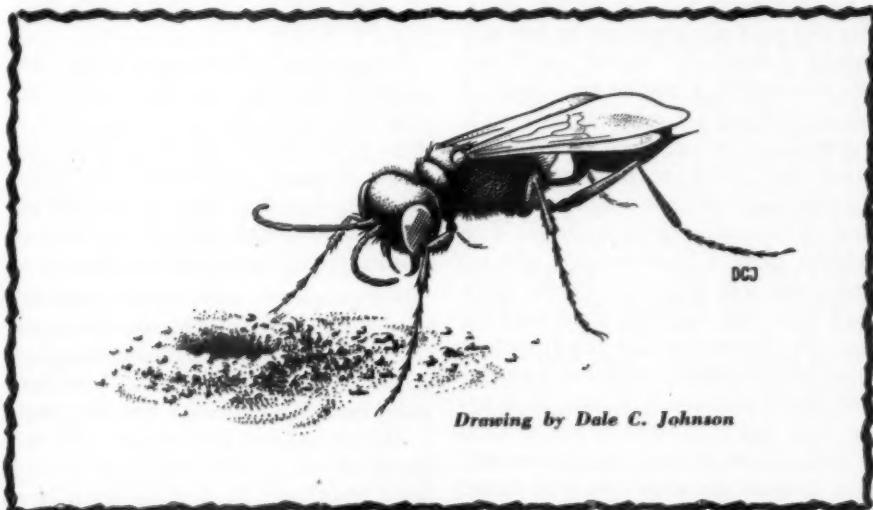
SCHEDULE OF EXHIBITS AT AUDUBON HOUSE

May 1-25—*Flowers of Florida*. Paintings by MILDRED HAYWARD.

June-July—*Birds of Florida*. Photographs by S. F. BRIGGS.

August 16-September 12—*Wild animals of the world*, by WILLIAM BRIDGES. Original drawings by MARY BAKER.

Mrs. *Sphex*



Drawing by Dale C. Johnson

By Edith R. McLeod

She was dainty and slim, all in blue, with a tiny waist—you might truly say wasp-waisted—and she had brownish-black transparent wings. I named her Mrs. *Sphex*, but you will not find her in the city directory, for she was a threadwaisted wasp, belonging to the genus *Sphex*.* Her body was a dark, metallic steel-blue, with rather short, curved antennae, about nine-tenths of an inch long.

* Wasps of the family, *Sphecidae*, include the well-known mud-daubers that build their mud nests under eaves and inside buildings.

When I first noticed Mrs. *Sphex* she was flying about a foot above ground, back and forth and around and around over our driveway of finely crushed rock. What was she doing, I wondered, or what was she hunting for? I sat down and watched her. She began to dig industriously. I quietly edged closer and squatted down near her. With great rapidity she dug away in the finely crushed rock and rock-dust of the drive, removing the tiny fragments of rock from the hole she was digging. Presently she abandoned it and hurried here and there, start-

ing holes in various places, only to abandon them shortly. I could understand why. In one spot the surface was too hard and packed; in another she seemingly encountered a large pebble—a boulder to her undoubtedly—and had to give up. One spot she tried was too sandy, for the dusty fine sand kept falling back into the hole as fast as she scooped it out. She finally returned to her first choice where she spent about a half hour excavating.

So engrossed was she in her work that she paid no attention to me as I inched nearer and nearer until my face was within a foot of her. She did her excavating by lugging each rock fragment out in her mandibles (mouth parts) one at a time, flipping it back between her legs far enough to be well clear of the entrance to the hole. The pebbles built a little mound around where she was working. Down again head first after another, then backing out, she seemed to take the fragment from her mandibles with her forefeet, and flip it between her long supporting back legs to the distance of an inch or two. So rapid were her movements that it took me some time to figure out how she did it. Finally she had dug so deep that she was out of sight, but she continued to come backing up repeatedly, carrying out a piece of tiny rock each trip. The tunnel sloped a bit, facilitating her removal of the debris.

Finally she stayed inside the hole for eight or ten minutes. Evidently she was packing the walls of the nursery to be, for I knew by this time that she was preparing for the generation that was to follow. When she came out this time she flew away over the fence.

She was gone about five minutes and then, about 15 feet away, I saw

her coming. She was flying low and laboriously, but when she reached the drive she alighted and half crawled, half flew, lugging a cutworm two or three times as big as herself.

At this point catastrophe overtook Mrs. Sphex. With a sudden swoop a house sparrow made a lunge at her and grabbed the worm. Mrs. Sphex probably escaped being grabbed herself by letting go of the worm in time. She fluttered around a bit, stunned by the misfortune, then back she flew over the fence.

It was nearly 20 minutes before she returned carrying another cutworm. The first time she was gone such a short while that I believe she had the earlier worm already located and anesthetized, but this time it was different. She evidently had to make quite a hunt before she found another.

She grasped its head in her jaws and struggled along, straddling the long body of the worm, sometimes dragging it, sometimes flying. Now I understood one of the uses for her long legs.

She passed her tunnel and laid the worm down a yard away, it having been paralyzed by a sting from her. Then frantically flying and crawling about she tried to find the hole. When she did, she descended and did a little more work, carrying out a few more pebbles. By this time there was a mound of pebbles about her nest.

Then she couldn't find the worm. She knew approximately where she had laid it down, but there was much running around before she finally stumbled over it. Grasping it by the head and straddling the body, as before, she dragged it to the entrance of the hole. As the hole of the nest was only just big enough to admit her own body, I surmised that she was going to have trouble going down with that

fat worm, but she didn't. Still straddling it she went down head-first, dragging it with her.

She stayed within for 10 or 15 minutes during which time she evidently laid an egg in the body of the paralyzed worm. In that condition the worm would still be fresh and nourishing for the baby wasp's food when it hatched out. Many insects provide food for their progeny in this way. The larva and pupa (chrysalid) stages all take place down there in the nursery and not until the insect is a mature wasp does it leave the nest.

It was at this exciting stage that my husband came home for lunch. Some husbands find lunch on the table but the husband of a naturalist may find his wife lying on her stomach in the driveway watching an insect. I motioned him away and he good-naturedly sat down on the rock wall and waited to be allowed to pass.

Lunch was a little late.

After laying the egg Mrs. *Sphex* came up and quickly began carrying

gravel back down the hole, one piece at a time. Soon I could see the back part of her body as the hole was gradually filled. Each time, after depositing a piece of gravel, her body gave five or six jerks. Why? I wondered. When the hole was filled enough so that I could see her head I saw that after laying the pebble in place she butted it several times with her rather large, flattened head, to pack the pebbles firmly in place.

In about ten minutes the burrow was filled. She rounded up the top a bit—to allow for settling perhaps?—then she did a puzzling thing. Backing away she turned around and with her hind legs kicked and sprayed dirt and sand over the nest, much as a dog kicks out a flower garden with his hind feet. I assume that she was instinctively covering up all traces of her handiwork so that hungry enemies could not see where she had placed her nest, and would never know of the choice morsel she had stored a few inches below the surface.



Waterfowl

Population Declining

Results of the annual continent-wide waterfowl census by the U. S. Fish and Wildlife Service show that populations of these birds have gone down. Millions of ducks and geese that remained in the United States during the generally mild winter of 1949-50, had given the incorrect impression that waterfowl populations had increased. Albert M. Day, Director of the U. S. Fish and Wildlife Service, speaking at the 1950 North Amer-

ican Wildlife Conference in San Francisco, said:

"It looks now as though instead of gaining ground last year, waterfowl populations lost some of the previous years' gains. We (the sportsmen) not only took the harvestable crop, but also cut into the capital stock of this year's (1950's) breeders. I fear that the final totals of the recent inventory will show a population decline."

BANDING

A professor of biology helps unravel an age-old mystery about birds

All photographs by Lewis Henderson, courtesy Akron Beacon Journal

CHIMNEY SWIFTS

By Ralph W. Dexter

EVERY spring, in the fourth week of April, chimney swifts return to nest on our campus at Kent State University, Kent, Ohio. After spending the northern winter in their feeding grounds somewhere in the upper Amazon Valley of Peru and Colombia in South America, the swifts follow the sun back to the northern hemisphere and fan out over most of eastern North America. Almost nothing is known about the extent of the wintering territory of the chimney swift and its habits between the time it departs from North America in the fall and returns here in the spring.

While it is with us on its summer range, it is one of our most common and interesting birds. Every bird watcher has seen and admired the cir-



cling colonies of twittering swifts and noted their unique roosting in large numbers within chimneys and air shafts. Up to 1944, more than 375,000 of these birds had been banded by co-operating people licensed by the U. S. Fish and Wildlife Service. Most of this banding work has been done with the aim of getting recoveries from the winter feeding grounds, the location of which remained a mystery until the latter part of 1943. Then, for the first time, 13 chimney swifts which had been banded at six widely separated localities at different times were recovered from some Indians who had killed them on the River Yanayaco, a region between the Putumayo and

Napo Rivers in Peru.* To date, they are still the only chimney swifts that have been captured in the bird's winter range.

My banding of the chimney swift has been chiefly for another purpose—that of studying individual life histories. On our campus at Kent, three buildings, adjacent to each other, have a total of 88 air shafts. In about 20 of these, the swifts nest each year. For six years, I have studied in detail the general habits and behavior of each bird that nests here. Up to the present I have studied 90 birds, and with their offspring and a certain number of

* See "Chimney Swift's Winter Home Discovered," *The Auk*, October 1944, pp. 604-609.

◆ The author setting his trap over an air shaft. The window attracts swifts to that end of the trap and the birds drop down through the funnel.

Removing a chimney swift from the trap.



transients, I have banded more than 400 of them.

When the birds first arrive at Kent in April, after a journey of some 3,200 miles, many tend to roost for several weeks in small groups before pairing begins. During this time from a half-dozen to nearly 100 can be trapped from a single air shaft. Many of these are transients, birds that are stopping on their way farther north, and will never again be seen on the roofs of our buildings. Some of them are the nestlings which were produced here during the previous year and are returning to their original home. Unfor-

tunately, all of the young hatched each year do not get banded at the time, so we never know just how many of them return to us from their first migration. Others are birds which have nested on the campus in past years and are returning for another season.

Each year about 35 banded birds return to nest. Often they return directly to the same air shaft and nest with the same mate as in the preceding year. Some repeat this process for several years before either changing mates, acquiring a new mate, or occupying a different air shaft. A few birds will try out several different shafts

Reading the band number that the author has placed on the leg of a chimney swift. "Repeat" captures of birds carrying a band with one of the author's serial numbers tells him of the return of certain chimney swifts to the same roosting or nesting site.



The saucer-shaped nest, built of dead twigs snapped off as the bird flies past a tree, is fastened to walls and bound together by the glutinous saliva of the chimney swift.

and visit with several possible mates before settling down with a selected one for the serious business of raising a brood in one particular location. Once mating has taken place the pair, with rare exceptions, remains permanently attached to its own shaft for the balance of the nesting period. As soon as all of the birds pair off, only one pair, as a rule, will inhabit any one of the air shafts. On a number of occasions a third swift has been found living with the nesting pair, and sev-



The author releases a chimney swift after noting the number of the band he has placed on its leg.

eral times four birds were discovered occupying the same shaft. A few single, non-breeding birds will also be found living alone.

Trapping at this time is a slow process, often yielding but two birds at a time. However, this permits a careful study of their mating and nesting be-

havior. After the swifts have dropped out of the sky into their shafts at twilight, the pairs can, with the aid of a flashlight, be seen clinging to the wall, usually hanging side by side. The banding trap is set over the top of the air shaft or chimney, facing its window toward the east so that the early morn-

Continued on Page 190

BEGINNERS Can HO



*"When a bird photogra-
pher starts work on a
nest, he must be prepared
to assume full respon-
sibility for its safety."**

By Richard B. Fischer

(Until he has learned fundamentals, the beginner in bird photography is not expected to follow the rugged practices of the experts. Allan Cruickshank, Roger Peterson, Karl Maslowski, and other well-known nature photographers sometimes labor to build platforms in trees from which to photograph nesting hawks, owls, and eagles, or spend hours standing in icy water, or crouched in a "blind" under a blazing sun—to get one more good bird picture. In the following article, the author recommends a milder technique by which anyone may learn to photograph the birds of coastal beaches, nearby fields, or in his own garden.)

WE'LL assume you wish to buy a camera just for bird photography, and that you have only a general idea of what you need. My first suggestion would be to spend as much as you can possibly afford; to me this would mean getting a good press type camera—Crown Graphic, Busch Pressman, B & J Press, etc.—while to some persons it would imply one of the best miniature 35-mm. cameras such as the Leica or Contax. Read up on these cameras, handle them at photo shops, find out about prices. In the discussion of cameras that is to follow, we will assume that each is equipped with its normal focal length lens.

* G. K. Yeates in "Bird Photography," Faber and Faber Ltd., 24 Russell Square, London.

IN PHOTOGRAPH BIRDS



Begin bird photography with easy subjects like the killdeer.

Should you decide on the press type—I hope you will—buy the largest you can afford. The larger the film size, the larger will be any image recorded by that camera. Stated differently, if two cameras using different sized film are used to photograph a bird four feet away, the one with the larger film will produce the larger image.

If you prefer a miniature you will have advantages—and certain disadvantages. Film price, especially for color,

will be much less; thus you can afford to take more pictures, thereby increasing the likelihood of good pictures. In addition these miniatures have great depth of field.

What does "depth of field" mean? You know from experience that if you focus a camera on an object ten feet away, objects closer than about nine feet, and further away than about 12 feet, are not in focus. The depth of field in this example is three feet.

Probably you know, too, that depth of field increases as your aperture (meaning lens opening or f stop) decreases, and that depth of field decreases as your aperture increases.

But for any given aperture, depth of field increases as the film size gets smaller. For example, a $3\frac{1}{4} \times 4\frac{1}{4}$ * camera with a 135-mm. lens and a 35-mm. miniature camera with its 50-mm. lens, both set at f 8, are focused on a bird four feet away. With the larger camera everything from 3' 11" distant to 4' 3" away will be in sharp focus, whereas the miniature's depth of field will run from 3' 5" to 4' 10". Thus, the user of the smaller camera will have the advantage of greater depth of field. The user of the larger camera can offset this disadvantage only by placing his instru-

ment farther from the subject,** since depth of field also increases with increased distance from subject.

This advantage for the smaller camera is a most important one, of course, but it is gained at the expense of image size—and the price is too high! Indeed, it is an important advantage only when working very close to the subject (within three feet), but that will be only one part of your activities. Usually you will be taking pictures at three feet from your subject and farther. At three feet, the image of a robin on the miniature camera's 35-mm. film is too small to make a satisfactory enlargement. Not only can one approach the miniature camera's depth of field by placing his large camera no closer than three feet and using

* These figures indicate size of negative in inches.
** This can also be overcome by using a shorter focal length lens on the larger camera but the author assumes that the camera is equipped with its normal focal length lens.

Depth of field—the sharply focused area including the subject and part of its foreground and background—becomes shallower as the camera is moved closer. In this photograph of a least tern, the area in focus falls off rapidly, especially in the foreground.



super-sensitive film (which a 35-mm. owner dare not use because of its grain size), but he gets an image that is about $2\frac{1}{2}$ times larger. If miniature cameras were practical for black and white work our great bird photographers would use them. They don't! Your camera will be your constant companion and assistant. Buy it with care.

Purchase a new camera if you can, but do not hesitate to buy a used model in *good* condition from a reputable dealer. Take someone with you who knows cameras and their prices. See that the lens is not a foreign one, for generally it will cost more than a comparable American make. A lens faster than f/4.5 is both expensive and unnecessary. Get some kind of guarantee and, if possible, a "money back within ten days if not satisfied" ar-

Terns are among the easiest birds to photograph. Note the remote control wire to the camera "trigger" and the shadow of the nearby blind in which the photographer is hidden.

angement. Use the camera and see that it performs properly before you accept it.

Try to get a camera taking sheet film of $3\frac{1}{4} \times 4\frac{1}{4}$ or 4 x 5 size with a lens as fast as f/4.5, a shutter with speeds at least as rapid as 1/200 that also can be focused as close as about $2\frac{1}{2}$ feet. If the shutter includes settings of 1/10, 1/5, 1/2 or one full second, you're in luck as you will see later. If it has ground glass focusing—and try *hard* to get one that does—you are luckier still.

The numerous $2\frac{1}{4} \times 2\frac{1}{4}$ reflexes may tempt you. However excellent they may be—magazine illustrators use them almost exclusively—in my opinion they are too small for us. There are many photographic catalogs which can be obtained free that are filled with pictures of cameras, tripods, flash guns, etc., to help you select the equipment you need.

Whatever you do, do not feel guilty



about spending money for photographic equipment. This interest of ours is more than a hobby—it is a means of artistic expression. Every normal person must have some creative out-

let, some way of giving form to his inner feelings, so we paint, carve, or perhaps play a musical instrument.

Although we are now ready to take pictures, two other items of equipment



Greater depth of field can be got in photographs of inanimate objects which permit slower shutter speeds and smaller apertures.

A surprisingly good tripod can be made by tying three poles together. The shutter of the $3\frac{1}{4} \times 4\frac{1}{4}$ Speed Graphic shown in the photograph was tripped with a wire, or cable release, from the burlap bag blind.

should be discussed. A tripod is essential for photographing birds at their nests, feeders, and baths. Get one at least five feet high with a tilting head. To effect a considerable saving buy a used one. When you purchase your camera, get a used flash gun for it. Most birds nest in shady places; to get light enough for a picture we either tie back the branches or use flash. Flash* and stroblight are *the* thing in modern bird photography, since they permit very fast shutter speeds and the small apertures that yield great depth of field.

You do not *have* to buy these items, though eventually you will. A surprisingly good tripod can be made at no cost whatever. Get three poles or tree limbs one to two inches in diameter and about eight feet long. Placing the thick end of each pole on the ground so that each is one point of a triangle with three-foot sides, tie the

* Read the articles on flash photography by Russ Arnold, *Popular Photography*, June and July 1949.

tips firmly together about 12 inches from their ends. The camera is placed atop the junction and, if need be, fastened with elastic bands. Camera height is varied by changing the distance between the tripod's legs or tying the poles farther from their tips. Even if you do have a tripod, you might try this when yours is not high enough.

If your tripod lacks a tilting head, make your own. It's easy and plans and instructions* are available in magazines for making numerous photographic gadgets.

A less satisfactory substitute for a flash gun is a large reflector used to shoot sunlight into the shade. Unfortunately, a large mirror is not satisfactory because it is too good a reflector—the beam of light is too intense and too hot for the birds. So get a piece of corrugated cardboard

* See The Readers Guide to Periodical Literature for page numbers of *American Photography*, *Popular Science* and *Popular Mechanics* where they may be found.



three feet square and round up a mass of tinfoil from candy and cigarette wrappers. Completely crumple each piece of foil, uncrumple it, and paste it to the cardboard. The many-faceted surface produced reflects a softer, diffused light in which shadows are better illuminated than with ordinary sunlight.

I know you're itching to get that camera afield, but shouldn't we first consider film and exposure? After all, every good print is made from a negative exposed correctly. I have tried to standardize procedure and simplify it so that I may concentrate on the subject matter. Therefore I use only three types of films, all panchromatic — one fast for dim light, another slightly slower, and a third which has medium speed. These happen to be Eastman Kodak's Super XX Type B, and Portrait Panchromatic. I have never used any of the "super-duper" fast films because I have seldom felt the need for them. When the light is poor I use flash, but you should use the fast films if you lack or dislike flash. Do not permit your friend with the miniature 35-mm. to steer you away from fast films with dire warnings of graininess in your resulting pictures—with film of the larger size that you are using, grain is no problem—provided you develop it properly.

When images are large, I develop the negatives in Kodak D-76, otherwise I use F-R's X-33. You would be wise to process your super-fast emulsions in a fine grain developer in order to avoid any possible grain problem.

Since a sharp image is our great concern, everything we do in making an exposure must be done with that in mind. That old bugaboo—depth of field—recurs, for it allows all parts of a bird or nest to be recorded in sharp

focus on a flat piece of film. Depth of field varies with the aperture and the distance to the subject. As we shall always attempt to take our bird pictures at close range, thus accentuating the problem, aperture is the key: keep it as small as possible. Unhappily, small apertures require slow shutter speeds, which may or may not be permissible with the particular subject.

When photographing moving birds* at close range, use your fastest film, a shutter speed of 1/400 or faster, and whatever aperture the light conditions and film speed permit.

Nesting habitats may be photographed with slow films, a speed ranging anywhere from 1/25 to a full second, depending on the motion or complete lack of motion, and the correspondingly small aperture made possible by so long an exposure. Of course, we could stop down even further with fast film, which would yield

* "Stalking Small Birds" by Mallet-Kimball, Photo Technique, May 1940, and "Stalking Shore Birds" by the same author, Photo Technique, June 1940, are well worth reading.

N A T U R E



great depth of field while not enabling the same degree of enlargement when prints are made. Use a cable release on these long exposures and press it gently.

Along with the photograph of the nest should go one of the habitat. As vegetation changes and matures, a habitat is altered, hence a succession of species finds it suitable. Life history studies and breeding censuses can hardly be called complete without such photographs. Use a K-2 filter (to improve sky rendition) when the habitat contains little green vegetation. An X-1 filter is better than the K-2 when photographing areas rich in green foliage, but its higher filter factor requires the use of faster film. I always use some kind of correction filter unless the sky is overcast.

After you have photographed a few incubating birds you will have noticed that some, like the killdeer, brown thrasher and wood thrush hardly blink an eye at the sound of the shutter, while others dash off wildly. If your

subject is the phlegmatic sort, capitalize on it by slowing down the shutter and decreasing the aperture. With a quiet shutter you can occasionally get away with only 1/50 of a second.

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(To be continued in the July-August issue.)

E IN THE NEWS

Rarest bird in North America and second largest woodpecker in the world, the ivory-bill once lived in coastal plain swamp-forests from North Carolina to Texas and in swamps of the Mississippi Valley. Today, within the United States, probably less than six of these birds are still alive. Photograph of young ivory-billed woodpecker by J. T. Tanner.

Ivory-Bills in Florida

Two ivory-billed woodpeckers, rarest birds in North America, were seen March 3, 1950 in Florida by members of an expedition headed by Whitney H. Eastman, a member of the National Audubon Society and its branch, the Minneapolis Bird Club.

This is the second year that Eastman, a

vice president of General Mills, has organized an expedition in search of ivory-bills. Last winter he searched another area in Florida but did not find any trace of the big woodpeckers.

The exact location of the ivory-bills is being guarded, and it is hoped that the difficulty of access to their habitat will help to protect them. Prior to this discovery no ivory-bill had been authentically reported since 1947, and it was feared that it had become extinct.

Persons wishing more background on the history and habits of the ivory-billed woodpecker will want to read the 119-page research report on the ivory-bill, published by the National Audubon Society. It is available from our Service Department for \$1.98.



LAZULI BUNTING

On summer days the hot brushy slopes west of the one hundredth meridian ring with the bright, measured phrases of the lazuli bunting. With the sky on its head and the red earth on its breast, it is one of the most attractive of all North American birds. Its white wing bars and turquoise, rather than blue-violet hue, mark it from the western bluebird, shown opposite. The East and the Midwest have the indigo bunting—blue all over; the South the painted bunting—gaudy as a rainbow; and the West, the lazuli. The trio divide the land among themselves.



Painted by
Roger Tory
Peterson

WESTERN BLUEBIRD

The rusty tan on its back and the blue throat
separate the western bluebird from its eastern counterpart.
Whereas, in the East, a bluebird might follow the
melting snows for several hundred miles to reach its New England
home, a migrating bluebird in many parts of the
West has merely to climb the nearest range of mountains.
This relatively short journey from the valleys where
it spends the winter to the yellow pine belt where it nests is
often called "vertical migration." Another bluebird,
turquoise blue, above and below, the mountain bluebird, also
lives in some of the western ranges at higher altitudes.



Photograph of Crip the brown thrasher by T. W. Brett.

Crip, Come Home!

By Ruth Rowland Thomas

ON October 6, Crip, our old brown thrasher with a stiff wing, started south.

Thinking of him all that day, I watched him moving through woods, slipping from thicket to thicket, watching, always watching. Crip could fly for less than a hundred yards; I had seen him force his wings till his strength was spent and he fluttered to the ground. There would be open spaces to cross in the woodland and, night or day, there would be enemies quick to pounce on a weary, crippled old thrasher. The owl sees in the dark, the Cooper's hawk watches from the noon-bright sky, and cats forever prowl on silent feet. Dangers enough in a bird's home garden, I thought, but many, many more to beset Crip's

miles of travel through strange country in his journey south.

When Crip first came to our hill in Arkansas and claimed the east yard as his nesting territory, he was like other brown thrashers, having two good wings and no name. I knew him only by the aluminum band, 308978, that I had placed on his left leg. Three summers he and a faithful mate built their nests in a great tangle of climbing Van Fleet and Silver Moon roses that flung their canes far and high, and each year he waited there for the time to fly south.

The spring that Crip was four years old, he lost his territory in the roses to a pair of strange thrashers. His old mate had failed to return; he was a long time at winning a new mate, and he finally settled in my north flower garden. On June 9, he fluttered across

*A moving story
of an old
brown thrasher's
fight to survive.*



Drawings by Robert Seibert.

our lawn, his right wing dragging, plainly broken. We never knew how the hurt had befallen him, or whether he had a family at the time.

For the rest of the summer, he lived alone in my garden. Still and fluffed, every morning he waited in the old lilac bush by the gate for the grain and nutmeats that I scattered on the ground. He grew very gentle, and even as I stood close by, watching, he would begin to eat. At noon, and again in the evening, I went out with food, and always something eased in my heart when I found the thrasher safe. And yet, I thought, what hope for a bird that cannot fly? Tomorrow, or the next day, Crip would surely die.

The summer ran out, no enemy struck, and the wing healed in a crooked way. It drooped from the shoulder and the wrist would always be stiff. With the molt finished, Crip became more active, went in long leaps across the lawn, and often got into trees by springing to the lowest branches.

In the middle of September, the wonder of it! he could fly! I had several times seen him glide down from a tree, landing with a topple to the right, but now he made short level flights from tree to tree, and then came the proud day that he lifted himself from the ground. It was awkward and labored flying. Whether the sound wing's strokes were shortened to match the injured one's jerky beats, or the compensation was in the line and tilt of the body, I do not know, but I never saw Crip fly without feeling in myself a sympathetic straining.

That first autumn following the injury, Crip knew his weakness. When it was time to migrate, he moved only from the north garden to the roses, and the thorny canes that had sheltered his nests became his winter castle and stronghold. During that winter, many times a day I took him food, and on winter evenings I listened for the muttered notes, "*kunnnh, kunnnh*," that told me he had made his way to the cedar tree to sleep.

Winter and then summer passed, and another autumn came. Again Crip stayed on his hill. Through October's sunny days he had perched in the roses. Wrapped in a moody silence, he heard the geese going over and watched the warblers in the oaks. There must have been conflict in his being: on the one hand, the fear that grew in him all the weeks he hid with his hurt; on the other the old, old

restive fever, like a command, "Go South!" By the next autumn he had grown so used to the stiff wing, so confident in his use of it, that on that October day he had joined the bird travelers moving southward. On October 12 he had gone, and with a sigh I resigned myself to a winter of hopeful waiting.

Winter in Arkansas is short. By March 1 the jonquils were in golden bloom; cardinals were whistling, blue-birds warbled and fluttered at their nest boxes, and the mockingbird sang and shouted and mimicked his bird neighbors. The warm days, the songs, and the greening of the earth gave me a small hope. Crip was wise and cautious, he might have escaped his enemies in October and on the beat of his homeward journey.

On March 14 a brown thrasher sang from the north garden, and I hurried out with my binoculars. The bird high in the white oak had two bands on the right leg—one, my own red celluloid identification band, the other, the metal government band. "Red," Crip's neighbor, had come home. Last summer, Red had owned as his territory the north lawn and garden, while Crip's land of the roses was to the east of our house. The two thrashers had established a dividing line, and seldom did either one trespass on the other's property.

It must have been the next morning that the thrasher that had been Crip's mate for the last two seasons returned. That afternoon I found her in a banding trap in my garden, knowing her not only by the number of her metal band but by the green celluloid band above it. Greta, I had called her, because she was GR, "green on right," in my file.

Red moved uneasily in the branches above us. As soon as Greta was re-

leased, he flew to her side. They moved on down my border of shrubs, tossing the old brown leaves of winter, digging into the soft earth, and Red, in the way of a thrasher newly mated, whispered a song. Faithless Greta, not grieving over Crip nor waiting for the old thrasher, had accepted his neighbor as her new mate.

If only these thrashers could talk to me! "Red, did you see Crip as you hurried home? Greta, did you pass the thrasher with a lame wing, resting, perhaps, in a tangle of catbrier?"

Then it was March 18. All day I watched. "Crip, come home! The roses are in leaf, a bower for your nest. Come claim your own, take back your wife. Are you even now hurrying with the hard beats of your wings?"

My hope grew faint; perhaps it was the time for grieving.

Seven more days went by. "Crip, are you coming? Too late to have your wife. Red and Greta are building a nest on Red's land, in the big honeysuckle of my flower garden. But they also claim the territory of the roses. They eat at your table and loiter in your thicket of thorns. Hurry, Crip!"



On the morning of March 26, Crip came home.

At six o'clock I had gone to the kitchen and put on the teakettle, then ran up the window shade. At the edge of the roses I saw a small whirlwind of old leaves flying around and around.

I rubbed the sleep from my eyes and looked again. Two brown thrashers were in a furious fight, and even as they leapt at one another and tumbled in the leaves, I could see that one had a stiff right wing. Crip!

In my excitement I was foolish and panicky, thought Red was killing the old thrasher, and ran out. Our two Scotties rushed after me, and at such a commotion the thrashers separated, Red flying up and away, Crip streaking to the roses. So Crip *would* have back his territory, for with birds, he who runs is loser; he who stays is the victor.

That was a wonderful morning, and I think I was happier than the old thrasher that had come to the end of his migratory journey. Only half believing what my own eyes saw, I hurried to tell my husband, "Crip's home!" and then out again with a handful of chopped nuts. From the window I watched the thrasher patter out of the roses and across the lawn to the table, and saw that he looked old (he would be eight that spring), that his color was faded and his tail and the right wing were frayed at the edges; but never mind, the winter and the journey were finished, now he would rest and know happier days.

Then to the barn to tend my milk goats. It was 30 minutes later, returning with the pails of milk, that I saw Crip and Greta and Red on the lawn and realized that Crip had come home to grief and trouble. Up to then, I had not thought of his reaction to Greta's desertion. Now he and his old mate, Greta, were only two feet apart, pretending to forage, while Red was a few yards to the north. Crip's feathers were puffed, he was on truculent guard and kept eyeing Red. Red, I thought, was uneasy and afraid. He

was the first to fly up to a tree, Greta followed, and then old Crip, lifting himself in his hard way, flew up to perch between them. Immediately Red and Greta flew to their garden, leaving Crip huddled in dejection.

Through the afternoon, Crip rested in the roses, and at twilight, going to the top of the nearest oak, he began to sing in earnest phrases. Next morning, Greta was at his table for the first serving of nutmeats. What could Crip think but that he had called her home? That was the thrasher pattern of courtship—songs to summon a mate. As he hurried to her side, she gulped the last mouthful and flew off.

Crip might have quickly accepted the loss of his former mate if she had stayed in Red's territory. But Greta had no regard for the males' territorial lines. Crip's home had been her home, and she continued her visits, thus keeping him in a state of alternate hope and bafflement. He offered himself, whispered songs, carried twigs and leaves as symbols of his eagerness to be at nesting. Greta's nest in the garden was finished; Red was the mate that had helped her build the nest, and the new bond was stronger than the memory of the two summers with Crip. Rebuffed, the old thrasher turned in fury on Red, who usually followed Greta to wait in a nearby shrub. Perhaps Red remembered the fight by the roses and knew that he was trespassing, for he retreated to his own territory.

Scene followed scene, the details varying little. I wrote in my notebook: "At 10 o'clock, Greta eats at the table; Crip leaps up beside her and she threatens with her beak. And still he hopes! Jumping down, he picks up bits of leaves . . . One o'clock, Greta is again at the table, and after eating, goes to the ground to forage. Crip

is encouraged, and seizing a leaf, runs to the roses, but Greta flies away . . . Two o'clock, Crip and Red and Greta are on the lawn near the old line between the territories. Red plainly wants to avoid a fight with Crip and flies up to a tree on his side of the boundary. Crip moves to Greta and both toss leaves, but she gives no sign that she sees him and presently flies to her nest in the honeysuckle; there Red joins her. Crip, still and forlorn, watches them."

On the third day, Crip seemed weary and confused; his occasional songs were thin and perfunctory, his manner toward Greta changed to timid doubt, and the rushes at Red took more and more of his strength. Now Red was the confident thrasher. He had learned that Crip was slow and clumsy, especially at rising from the ground, and he grew bolder at trespassing into Crip's territory.

On the fourth and last day of this strange situation, Crip was visibly drooping, worn, I think, by the frustration as well as the frequent clashes with Red. At two in the afternoon, both Red and Greta ate at the table, and then, defiantly, both flew to the roses. Crip, huddled in the old leaves at the edge of the tangle, had ignored the two at the table, but no thrasher's pride could endure a neighbor-male in the home sanctuary. He roused, ran a few steps, then faltered as though one leg was hurt and spread his wings for crutches. With an obvious effort he pulled himself up, leapt into the roses and chased Red a few yards toward the north garden. And then Crip fluttered to the ground and slumped against a tree. His eyes closed, wings sagged, all his feathers were curiously loosened. Was my thrasher dying! Red, knowing his

advantage, slipped back to the roses. And old Crip, fierce and pitiful, started up. It was time to interfere, and I went out and drove Red and Greta away.



Crip rested then, and his feathers smoothed down, but for a long time he held his right foot against his breast. At six-thirty I saw him in a furtive running to the cedar. My poor thrasher! That was the way he had traveled the long miles to reach this unhappy home.

On the fifth day, Crip's luck changed. For one thing, I piled extravagant heaps of nutmeats on a shelf in the north garden, so that Red and Greta would have little reason for going into Crip's territory. Of far greater importance, a single female thrasher arrived. It was March 30, very late in the season, and I had not dared to hope that a prospective mate for Crip would arrive.

Crip forgot Greta, and all the forenoon he sang the bold and beautiful songs of courtship from an oak on the south hillside. Somewhere below him was the thrasher that he was asking to be his mate. By afternoon, he had

called her to the roses where I saw her sprawled, sleepy and basking, at the sunny edge of the tangle. Crip had come down from the singing tree, and he now ran to her side and picked up a twig, but the lady was not yet won. She sprang up and flew swiftly down the hill, and Crip, flinging the twig away, followed in long running leaps across the lawn. He sang again, as he would keep singing till she gave him his answer.

For three days, from dawn to evening twilight, Crip sang his courtship songs. Not even in winter had my nut-meats served him so well. Taking no time to forage for natural foods, he sailed down to the feeding table, ate hurriedly, then fluttered to the roses, leapt up through the canes, thence to the branches of the nearest oak and on to the topmost twigs. His energies were the more amazing when I remembered the way he had collapsed in his last encounter with Red.

That he chose the oak by the roses was a good sign, meaning the lady loitered not far away. Now his phrases were proud and quick with an undercurrent of eager excitement, now low and gently pleading. Perhaps the one for whom he sang had moved a little nearer and had turned her head in quiet listening.

On the morning of April 2, Crip, old and dingy brown, his right wing ugly in its stiff deformity, walked beside a mate of shining rufous-russet, small and trim, a maiden come to her first nesting. They dug in the grass together, tossed the wind-blown leaves and twice, Crip gave his lady a possessive peck. Her meek submission told me of her youth. More often, the old thrasher paused to hold himself very still, lost in dreaminess, and to whisper faint breaths of song.

In his new joy, Crip had regained his old spirit. One day he caught Red under the roses and gave him a savage drubbing. Red's mate, Greta, had now laid her eggs and was not inclined to stray far from the nest. But let Greta come to the rose land and the young Mrs. Crip would send her flying. I was pleased to see that Crip and his wife would suffer no more intrusions from their thrasher neighbors.

At noon, Crip carried twigs to the roses, to begin the foundation of a nest. Even at his work he now sang tender whispers of a song. Proudly I watched our old crippled thrasher. He had not only come back to us, but had won out in a battle as old as the world. Conscious fulfillment, he may not have known, but for me, there could never be a more glorious spring.

• • •

It would seem that Americans—trees, flowers, and perhaps humans—were meant to be forest dwellers. Perhaps that is why so many of us who live most of our lives in cities feel that we shrink and shrivel, physically and spiritually, unless we sometimes get back to the country. We boast of our skyscrapers, but we are not at home in them. Something of the red man's psychology has entered into us. It may be sheer mysticism, but it is a solacing thought that real Americans—windflowers, sugar maples, hermit thrushes,

chipmunks, or humans—cannot stand the dust; while only authentic American trees and wild flowers and birds and mammals can survive in the forest.—Lewis Gannett, "Cream Hill."

About a slender-waisted, quick-moving solitary wasp there seems to be always something of the exquisite courtier, a D'Artagnan of sorts, both insect and man equally deft and skilful in the use of their rapiers.—William Beebe, "High Jungle."



*Tightly sealed barn
to the barn owl house*

PAMPERING B

Fewer hollow trees cause barn owls to seek man-made structures for nesting. Photograph of barn owl (below) by G. E. Kirkpatrick; (right) by Allan D. Cruickshank.

By E. I. Stearns

THE region around Pluckemin, N. J. is a particularly good one for barn owls. It is partly abandoned farming country with old buildings which are infrequently, or no longer used. Cultivated fields are bordered by rows of large trees and overgrown hedges which offer good cover for barn owls if they are flushed from their preferred daytime roosting sites. There is no dearth of animal food. Analysis of several hundred barn owl pellets from that area showed that the fields abound with meadow-mice which

comprised 90 per cent of the food of these owls. The remainder of the pellets were largely the bones and fur of the short-tailed shrew. One pellet contained the tail of a house mouse which shows that owls, like other predatory birds, feed on a variety of rodents.

In view of the availability of roosting sites in old buildings, the good cover, and abundant food, it is not surprising that in May 1944, Dick Fischer of the Linnaean Society, New York City and I found two barn owls roosting in a barn on an abandoned farm. It was the nesting season and

receded farm buildings and narrow nesting ledges contribute
to owl housing shortage. A New Jersey birder helps by

ING BARN OWLS

o seek
Photo-
Kirk-
hank.

Photograph of silo by the author.



we searched the building carefully but could not find a nest. We wondered why we did not find a pair of barn owls breeding here when food conditions all around were so ideal. Careful consideration soon suggested the answer. There was no suitable nesting site.

Farmers show little consideration for barn owls. Most of the newer farm buildings around Pluckemin are sealed up so tightly that even a house sparrow would have difficulty in forcing an entrance. Even the old and dilapidated buildings are not particularly suitable, for they seldom include nesting places near the roof. This barn was no exception. Ledges were no wider than eight inches and in the dark corners where the owls might have preferred to nest there was even less room.

Judging by the way in which the owls perched side by side on the steel overhead loading track near the roof, it was evident that the two birds were, quite possibly, a mated pair. As far as we could determine, only the absence of a level space large enough to hold their eggs had prevented them from nesting. The obvious answer was to provide a nesting platform. We looked around the barnyard and soon found an old nail keg and some baling wire. We wired the keg horizontally to a rafter, but felt dissatisfied with it. We believed that it was too small; perhaps the future young owls would prefer a level floor, or maybe the interior was too light for the adult birds. We pondered these doubts as we walked from the barn back to the abandoned house and toward the road. Then our eyes fell on just the thing—a doghouse! It was just an ordinary doghouse, built for a small hound. We uprooted it and lugged it back to the

barn, then put up an old ladder that reached almost to the top rafters and ferreted out some more hay wire. With one of us pulling on a hay-wire sling, the other pushing from behind with plenty of grunts and groans, we soon had the doghouse resting upside down on a rafter, with the rear end of it pressing against the inside of the sloping barn roof.

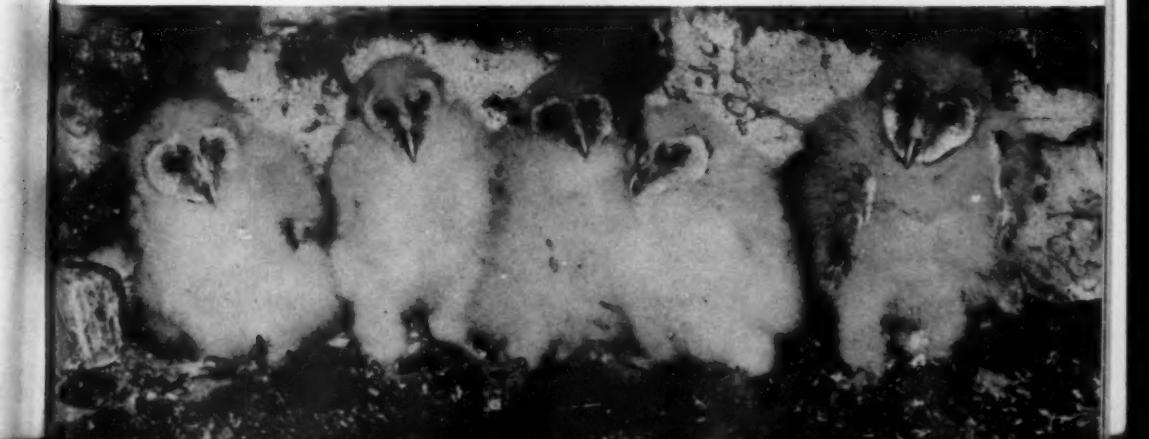
Back down on the floor again we stood and admired our handiwork, with complete faith that the owls would be attracted to this prospective dwelling. There was an entrance hole, originally made for a small dog, but ideally tailored to a barn owl. Behind it was a dark compartment which could not have been better designed to rest light-sensitive eyes. The floor of the room was about three feet square, which would provide ample space for parent birds to move about without stepping on any of the future owlets, and the young could not fall out without first climbing over a six-inch barricade at the doorway. This time we walked away satisfied from what we had, by this time, dubbed the "doghouse barn."

Four weeks later I eagerly returned to the doghouse barn with another friend, Bob Conn. We looked along the usual roosting rafters but there was no sign of the owls. Had our carpentry frightened them away? Could it be that the birds were actually using our doghouse? Carefully we raised the ladder. Suddenly there was a great scratching of claws on wood as the female (larger) owl clawed her way through the doorway. Silently she glided through the open hay-loading door and alighted in a nearby tree. We found four eggs indicating, perhaps, that only the lack of a nesting site had kept the owls from laying earlier.



"Meadow mice comprised 90 per cent of the food of these owls."
Photograph of barn owl with meadow mouse by John H. Gerard.

"The floor was about three feet square, which provided ample space for the parent birds to move about without stepping on the owlets." Photograph of young barn owls by Allan D. Cruickshank.





"Even the old and dilapidated buildings are not particularly suitable, for they seldom include nesting places near the roof." Photograph courtesy of Farm Security Administration.

"Another pair of barn owls nested high in a silo on a narrow ledge. At the bottom, we found three youngsters killed by a fall of 40 feet." Photograph by Allan D. Cruickshank.



Another pair of barn owls under our observation nested in a silo in the same general area. Here again the nesting conditions for barn owls were far from ideal. They had laid six eggs on a flat board about 12 inches wide that spanned the silo at the very top. Revisiting the nest in June, we found two young very much alive and hissing, but three young ones were lying dead at the bottom of the silo, a 40-foot drop. We reasoned that the sixth had also fallen, perhaps earlier, and been eaten, possibly by a rat or a foraging skunk. One of the two live young owls had pin feathers about two inches long. The other was a mere handful of fuzz. Neither showed any awareness of danger as they backed precariously close to the brink. Their endangered position called for action.

Going back to the doghouse barn we found an old bushel basket, a three-inch nail, and a brick. We came back to the silo to which the parent birds had not yet returned. Balancing the equipment on my head, I climbed the silo ladder with all the skill of a volunteer fireman. Bob followed me and held the two young owls while I crawled out to the center of the plank where the eggs had been laid. The bodies of the dead youngsters 40 feet below were a grim reminder not to fall. Then came the task of pounding a three-inch spike through the basket bottom and two-inch plank.

If you have seen a barn owl nest you know that it is not particularly tidy. In fact, it makes you realize that all the guano is not in Peru. As

I pounded the dusty plank a smoke screen quickly developed around me. I really needed radar equipment to find my way back to the ladder. If you have ever blown an automobile horn in a tunnel, you will realize the reverberations one can create inside a silo.

The temperature was about 110 degrees. This is not bad if you are relaxing in the shade of a tree, but I was pounding a three-inch spike with a brick, unable to get a full swing because of the sides of the basket.

Eventually the job was finished. I can think back now on the risks that I took in perching high in the top of barn and silo, the dust, deafening noise, and stifling heat that I endured, just to pamper two pairs of barn owls. Yet, the satisfaction I gained in lending those owls a helping hand more than compensated for the discomforts and perils of that venture and the birds themselves have also helped repay me for my efforts. The doghouse owls seem contented in their new quarters and in May, 1945, when I revisited the silo, I flushed a barn owl from six eggs laid right in the middle of the basket! The housing situation is difficult for human beings, but it is even worse for creatures which depend upon hollow trees in a natural environment that has been destroyed by man. Broadening our "good-neighbor" policy to include homeless wild creatures may be pampering, but we can't deny its importance if we wish to keep certain kinds of interesting wild creatures with us.

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"To build a road is much simpler than to think of
what the country really needs."—Aldo Leopold, "A Sand County Almanac."

(CONTINUED FROM
MARCH-APRIL ISSUE)

**"Never in history have there
been so many ways in which
a bird lover can find inter-
esting and worth-while
things to do with his hobby."**

"Think of the handicaps under which Audubon labored, his lack of transportation, of field glasses. . . . It is no reflection on this remarkable man that there was much to learn about

birds after his death." Portrait of John James Audubon by his son, John Woodhouse Audubon, about 1841. Courtesy of American Museum of Natural History.



John James Audubon

—Artist and Ornithologist*

By Ludlow Griscom

AUDUBON's name has become indelibly associated with the popular movement to protect and conserve American birds. Some 70 years ago thoughtful and high-class sportsmen, appalled at the increasingly rapid decimation of game, began to agitate for the absolute necessity for restrictive legislation. At this period practically no bird received any legal protection whatever. In a few states certain game birds had a brief closed season during

most of, or a part of, their breeding season only, and there were virtually no bag limits whatever. Moreover, any method was legal, including the most destructive, such as night shooting, fire lighting, netting and trapping. The last great nesting flock of passenger pigeons in Michigan was so unmercifully raided that over 100,000,000 birds were shipped to city markets. Chesapeake Bay was a noted paradise for waterfowl. Market gunning began there in 1795, was pursued throughout the season (September 15-April 15) at

* From an introduction to "Audubon's Birds of America" (popular edition), published March, 1950 by the Macmillan Company, New York City.

a steadily increasing tempo, so that by 1870, up to 15,000 ducks were killed in a day. As the same activity was going on in every other locality where waterfowl were numerous, the decimation in numbers of this group of birds can be imagined. The plume trade reduced the egrets and most terns to the verge of extinction.

The various state, and, finally (1905) the National, Audubon societies were an outgrowth of the original bird protection committee of the American Ornithologists Union (1883). These societies were led by thoughtful sportsmen and ornithologists, but their rise to power, influence and adequate financing was chiefly due to the rise of popular interest in birds, which began about 1895 and has been going on ever since. The era of bird protection was rapidly and triumphantly successful.

American bittern. "A secretive heron of marshes and swamps from southern Canada southward."

By 1920 most North American birds were protected, the federal government had taken over the control of all migratory birds, any form of commercial use of native birds was illegal, a large number of birds had been permanently removed from the game list, and the open season and permissible take on the remainder had been drastically reduced, and this reduction is still going on. The results have been most gratifying. Over 100 species of North American birds have greatly increased in numbers, and some are already as numerous as at any time in the historical period.

The one possible criticism the naturalist can make of the extensive literature of the bird protection era is its uniformly pessimistic tone. It was probably necessary for arousing a supine public, but was not entirely true. It was indeed very true that from 1850 to 1900 far more birds were rapidly



decreasing than the few which were increasing. It is human nature to sigh for what has been lost, and to take what one has for granted. The other natural error of this era was the general belief that the rapid decrease of many birds was due wholly to overshooting.

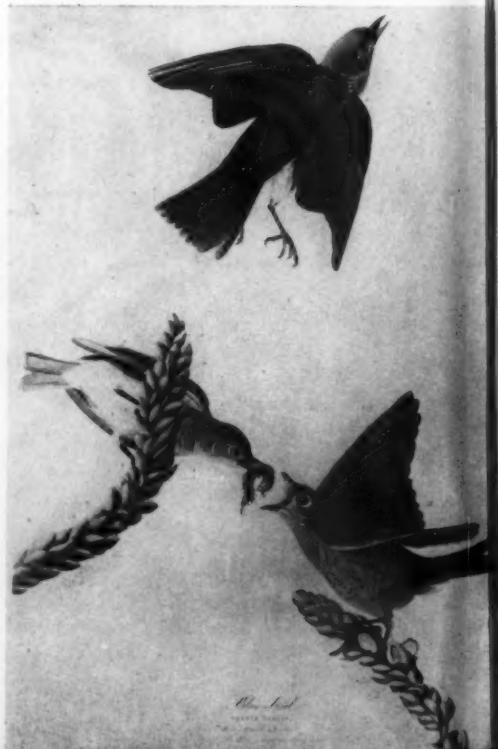
This fallacy is now being gradually corrected by time and experience, but must still be sold to the vast number of Americans interested in birds. We now know that many of the birds completely protected for many years will *never* regain, nor approach anywhere near their former numbers. The reason is that our civilization has destroyed too large a percentage of their required habitat, and they lack the necessary powers of adaptation to adopt a new one or make some compromise. This leads to a second great general principle in natural history. The total number of existing individuals of any bird or other animal can never be greater than the amount of favorable habitat existing or remaining, and the total amount of the necessary food.

We speak of marsh and water birds without stopping to think that they must have marshes and water. Our civilization has drained millions of acres of marshland, and is continuing to do so at a rapid rate. Innumerable streams are polluted or dried up by a century of building operations. Ponds and lakes are now surrounded by cabins and camps, and covered with boats and canoes for parts of each year. For many water birds such a lake has become a total loss. It transpires that food cannot be taken for granted. The brant goose feeds on eel-grass almost exclusively, and was so seriously reduced when a disease struck this plant that it had to be removed from the

game list for some years. The ivory-billed woodpecker is almost certainly about to become extinct in the near future, because highly specialized food habits require a substantial acreage of primeval forest to keep one pair alive. As civilization has eliminated the southern primeval forest, the few surviving individuals are doomed.

Along the lines of this exposition the era of bird protection passed rapidly but imperceptibly into the era of conservation. Our birds are protected, but still need to be conserved. The Golden Age has not arrived because we have stopped shooting. Never are all of them prospering and doing well at any one time. Particularly hard pressed are our few remaining game birds, whose foes, the sporting fraternity, are increasing by leaps and bounds, as leisure, means, and facili-

Bluebird. "Breed in cleared country, woodland edges, farms and gardens in tree-holes or boxes, from central Canada southward, retiring southward in winter."





American magpie. "Resident in western North America from Alaska to the southern Rockies. Now extending its range eastward across the Great Plains."

ties of transportation increase. But all the birds are being put under constant strain and difficulty by the multiple and rapid changes which an expanding technological civilization is making on the face of our land. Forest fires, lumbering, and oil wells ruin vast stretches of country yearly; the prairies are fenced in and overgrazed by cattle and sheep; intercoastal canals bring salt water into fresh water bays and landlocked sounds, ruining and disrupting the native plants and animals. Fields and pastures are plowed up and planted to corn or vegetables; some farmer's woodlot of last summer is cut down for firewood during the winter; every year some local marsh is used as a town dump and gradually filled in. Every one of these

habitats supported a rich community of birdlife. Where do they go?

Conservation consequently involves an intelligent and successful effort to preserve major habitats and types of country, in as natural a state as possible. Hence the great development of national and state parks, national and state forests, and the great chain of federal wildlife refuges. A new profession of wildlife management has arisen—an outlet for young naturalists. The refuge area must be maintained and guarded; it can also be improved. Dams can be built, artificial ponds can be created, the more desirable food plants can be introduced, and water levels preserved. The manager and his staff can count and note the increase in the wildlife, observe the relative success of the breeding season. The plants, mammals and birds requiring all these types of country are almost automatically conserved for the enjoyment of posterity. One good proof of the general success of this movement is the steadily increasing number of campers, tourists and visitors, the money involved supporting a variety of industries in the economic sense. A forceful and able executive staff is also essential. The appropriations must be secured from Congress, and above all the constant effort to raid the parks, forests, and refuges for other interests must be fought off. Our civilization is now so complex that it is almost impossible to do anything without hurting someone else's interest. The army and navy are looking for bombing ranges in wilderness areas, where there is no risk of blowing up our citizens. Power dams and major irrigation projects often threaten these areas. The ranchers seek grazing privileges in the parks and forests, the lumber interests are perpetually trying to get permission to

cut down a tiny piece of some forest. Everlasting vigilance is required.

It follows that we live in a state of perpetual change and flux. As habitats are destroyed and replaced by others, one group of birds comes in and another goes out. Every decade some bird begins to fade out, some other bird learns to adapt itself to man, and begins to flourish and increase. The duck hawk, or peregrine falcon, is turning metropolitan. More and more spend much of the year in cities, roosting on a church spire or skyscraper, living on the city pigeons. The snowy owl from the arctic has also become a suburbanite, visiting the local dump nightly for rats. Everyone is glad to see them, and appreciates their services as rodent reducers. Every nature lover, every bird watcher, every member of the Audubon Society can now make a contribution. He can

count and keep careful watch over his local birds, detect the upward and downward trends, and report them. The sum of the local reports equals the welfare of each species in its total range. Never in history have there been so many ways in which a bird lover can find interesting and worthwhile things to do with his hobby. Any boy or girl of high school age can learn to identify his local birds and begin useful work.

There is one other major principle in natural history the understanding of which makes the pursuit of any branch of it more interesting. The real harm done by the white man and his civilization is his ruthless and wasteful exploitation of the rich natural resources of this continent. In so doing he has utterly upset and disrupted the balance of nature. The question arises just what is the balance of na-

Killdeer. "Breeds in fields, pastures and plains throughout southern Canada and the United States. Abundant, noisy and conspicuous. Once more common in the Northeast, where it was nearly extirpated."



ture? We may begin with our birds, which require a suitable habitat and an adequate food supply. But birds are not the only living creatures in the habitat, and their food can only be other living animals and plants. Therefore the bird in its habitat is one member only of a living or natural community, and is dependent upon the other living members of the community. Actually the soil, water and climate are the basic factors. The plants come next, followed by insects, and last of all the birds and mammals. This succession is easily proved in areas devastated by a volcanic eruption, or where a great glacier has melted and retreated in a cycle of warmer climate. But complete interdependence exists among the living members of the community. There is a fascinating chain of interrelationships. The insects eat the plants, but they are essential in pollinating the flowers. The birds live in the trees and eat the insects. The foxes live on the mice, which live on the plants. The hawks live on the songbirds. Everything is preyed upon by something, but everything also performs an essential service by keeping in check the numbers of something else. The balance of nature in a natural community is such that the community continues forever. This is accomplished by keeping the numbers of each living creature in a proper proportion. The foxes obvi-

ously never eat up *all* the mice, or they would exterminate themselves. As no living creature can afford to exterminate its food supply, the food supply is more abundant individually than its enemy or predator. Therefore there never are as many foxes as mice, or as many hawks as songbirds, or as many insects as plants. Any increase in mice is sure to initiate an era of prosperity for foxes, which automatically causes the reduction of the mouse population to normal, which starves out the extra foxes. And so on *ad infinitum*.

Civilized man is the only living creature who has the power to disrupt the balance of nature and exploit his food supply and natural resources without immediate, disastrous results. In America we have impoverished our soil, overgrazed our prairies, killed our game more rapidly than it can reproduce, and cut down our forests more rapidly than nature can replace them. This is easily seen to be stupid folly if we stop to think that our food-plant crops require fertile soil, and that our civilization absolutely requires timber and wood. Hence the modern efforts in money and talented manpower to inculcate the principles of conservation before it is too late. And so we take one more backward glance at the great figure of Audubon, his vanished wilderness, and mourn the further loss and decrease of the many striking and spectacular birds he loved so well.

• • •

Birds versus Picture Windows

Has any reader of *Audubon Magazine* found a practical method of preventing birds from flying into "picture windows" without obstructing the view from the windows?

Reports reaching us indicate that many readers are seriously concerned about the number of birds that kill or maim themselves by flying into large glass windows, particularly where

such windows extend on two sides of a room. This apparently deceives the birds into attempting to fly through the house. Casualties are highest during migrations.

The editors will appreciate it if experiences or ideas on this subject are addressed to *Audubon Magazine*, 1000 Fifth Avenue, New York 28, N. Y.

BANDING CHIMNEY SWIFTS

Continued from Page 161

ing light will bring the birds out of the "chimney" to the window, where they drop down into the burlap bag. They are easily and harmlessly removed from the bag, one at a time, to record the number on the band or to apply a band if it proves to be a new bird. The aluminum band* is carefully placed around one of the short, stout legs. Sometimes I examine the birds for biting lice that infest them, after which the swift is released with a toss in the air. After both birds have been released, which may be in the late afternoon, since both do not always enter the trap in the morning, the trap is removed.

Examination of the shaft is now made with the aid of a mirror to determine progress in nest building, egg laying, hatching, feathering, and preparations of the juveniles for their first flight. Most of the nests are built from 10 to 30 feet down in the shafts, although some may be placed as far as 50 feet down. Most of the nests are successful in producing a brood of three to five young, but occasionally a heavy rainstorm washes a nest off the wall; sometimes the added weight of adults and nestlings tears one down. A destroyed nest or clutch of eggs is not usually replaced unless the accident occurs early in the nesting season.

After the fledglings learn to fly, the family will soon disperse. Some fledglings never return to the home shaft following the initial flight. Some stay for a while, but in the late summer and early fall they tend to congregate in small flocks in certain shafts, usually in a few of those in which nesting

took place. Even the parents may no longer remain in their nesting place, often separating and joining different roosting flocks. Some will join a group but remain together; a few will continue to stay together and remain by themselves in their original site until the chimney swifts leave on their southward migration during the first week of October.

We have learned much about the habits of these interesting birds from banding and observations of nesting pairs. From the data I have accumulated during the past six seasons we know the swifts arrive between April 22 and 26, at our location. They are generally paired by the middle of May, and nest building begins in the first week of June. The nest is built in three or four days, and three to five eggs are laid, one each day as a rule, starting several days after the nest is completed. Incubation, in which both male and female take part, requires about three weeks. The young ones hatch out on the average of one each day. Blue pin-feathers appear in a few days which begin to open out into black feathers several days later. After a week or two the youngsters leave the nest, learn to fly, and the family often scatters soon afterwards.

It is hoped that with further study and observation we can learn something about the longevity of this bird, more about the relation of the sexes, and perhaps explain some of the irregularities such as the occasional living together of three birds throughout the nesting season, instead of the usual pair. The behavior and social life of the chimney swift are fascinating, and far more complex than at first appears. Each year, we look forward to gaining new knowledge of a common bird species about which we feel we still have much to learn.

* Bands are supplied, only to licensed operators, by the U. S. Fish and Wildlife Service. For details on banding birds see, "Manual for Bird Banders," by Frederick C. Lincoln, U. S. Department of the Interior, Washington, D. C., 1947.

NEWS OF WILDLIFE AND CONSERVATION

By John H. Baker

President of the National Audubon Society



Aiding Teachers and Youth Leaders In Effectively Presenting Conservation*

We believe that no man is entitled to be considered educated unless he has been exposed to an understanding of the relation to human welfare of intelligent treatment and wise use of natural resources. We believe the time is fast approaching when that concept will be so widely held that every high school, let alone college, graduate will have been so exposed, and will realize that, no matter what the form of government or form of economic system, practical applications of knowledge of the interrelationships of soil, water, plants and animals are fundamental to human well-being, let alone survival on this planet.

By and large, our teacher-training institutions have not equipped their graduates to arouse intense and enthusiastic interest of their students in conservation. In those relatively few instances where training in presenting this subject has been given, usually it has been offered only to those students wishing to specialize in natural science. In our opinion, every teacher in training, no matter what his special subject, should be trained to integrate conservation effectively

* Address presented by John H. Baker, President, National Audubon Society at 15th North American Wildlife Conference, San Francisco, California, March 6, 1950.

with every subject that he teaches. Conservation touches on the activities of every department of government—federal, state, county and municipal; it touches on the daily activities of every man, woman and child. Its effective integration with all subjects taught in schools, colleges and universities will make them all more interesting and consequential.

Haven't we, in promoting conservation-education, too frequently put the cart before the horse? Numerous laws have been passed, requiring the teaching of conservation in our schools. In many states much work has been done on new syllabi for conservation teaching. Both are of very little practical value as long as the teachers have not been trained to present the subject effectively. How good would a farmer be just because his state law said that he must farm or because he had read farmers' bulletins telling him how he should do this or that? He must learn in the field how to plow, disc, drill and harvest; how to cure bloat or hoof-rot in his livestock. He must learn from experience. Field experience and training in "know-how" are just as essential to the successful teacher of conservation as to the successful farmer.

It was with these thoughts in mind that the National Audubon Society launched its summer camp program for adults, especially designed to be of practical aid to school personnel, youth leaders and camp counsellors,

Photograph of California Camp by John Harville.





Photograph of Maine Camp by Allan D. Cruickshank.

recreation and playground personnel, conservation chairmen of societies and clubs, and others with a hobby or professional interest in nature. These camps are more than natural history schools. They are concerned with more than simply stimulating hobbies or professions. They aim to develop majority public opinion favoring intelligent treatment and wise use of our natural resources, so that there may be constructive legislative results, with popular enforcement. The Society is working on the leverage principle, imparting a knowledge of successful teaching techniques to teachers and other youth leaders, each of whom may be expected to reach an average of 30 youngsters during the ensuing year. Some 850 persons graduate each year from the four camps now operating in Maine, Connecticut, Texas and California. Picture, then, the influence to be attained by a dozen such camps geographically distributed throughout the continent, graduating annually some 3,000 youth leaders possessing opportunity to reach, each school, troop or club year, some 90,000 young people. Bear in mind that the camps cater to new students each summer, so that the effect tends to snowball rapidly.

If, in a two-week session, we can convey to each student comprehension of the interrelationships of soil, water, plants and animals and an awareness of their impact on hu-

man welfare; knowledge of successful teaching and leadership techniques, not by listening, watching or reading about them, but by trying them out in the field under guidance; develop in them a wonderful spirit and the feeling that they have never had a better time in their lives; cause them to wonder how we can give them so much for so little and send them home with new zest in life and a will to further conservation in their own communities, we have accomplished our principal objective.

The camp staffs are carefully selected, with an eye to outgoing personality, sense of humor, training, teaching and leadership ability, knowledge of natural science subjects and familiarity with camp life. They are drawn largely from the staffs of colleges and universities. They operate as a team, with no such conflicts in subject approach as would result if a series of "experts" lectured to the campers.

In California, credit recognition for teachers satisfactorily completing two-week sessions at our camp has been granted by the state colleges and by the University of California; in Texas by the University of Texas; there the camp is officially endorsed by the leading associations of school personnel. In the Northeast, no need of credit recognition has been met with.

At these camps our students see nature at

Photograph of Connecticut Camp by Charles Daly.



Photograph of Texas Camp by Dorothy Treat.



work in her own laboratory, observe the way of a bird with its young, watch a butterfly emerge from its chrysalis, see a bare rock in the very process of being clothed with soil, or a pond, overgrown with lily pads, becoming dry land. Such experiences will thrill and hold 10,000 adherents to every one attracted by the "skin and skeleton" school. The enjoyment of a forest vista, of a clear stream, of a green valley and of bird-song, or the stir of leaves in the night wind, is as much a part of our educational theme as the analysis of a habitat, the study of plant succession, or investigation of the relationships between prey animals and plants and their predators.

The Society endeavors to make students aware of the steady stream of life going on around them; of its beauty, richness and complexity and, above all, aware that they are part of this exciting pageant of events; that human life is affected in all sorts of ways by every plant that forms a seed, by every prairie dog that makes a burrow, by every dragonfly that emerges from its nymphal case; that man is, in fact, part and parcel of the biological picture, and can no more escape therefrom than from birth or death.

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BEQUESTS: An Appreciation

Much of the constructive conservation work of the National Audubon Society is made possible by bequests of nature-minded people.

From July 1948 to April 1950 the Society received individual bequests ranging from \$60 to nearly \$30,000 as a result of the interest and generosity of the following persons:

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"Hummingbirds are unlike other birds in their mental qualities. The want of expression in their eyes, the small degree of versatility in their actions, the quickness and precision of their movements, are all so many points of resemblance between them and insects." Henry W. Bates, "The Naturalist on the River Amazon."

MAY-JUNE, 1950

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Nick Schexnayder, holding the whooping crane; Bob Allen in background.

The Unique Drama of a Wild Whooper*

By Robert P. Allen

Research Associate of the National Audubon Society

USING a helicopter, we caught the last wild whooping crane in Louisiana on Saturday afternoon, March 11, without disturbing a feather, and carried "him" to the Federal Aransas Wildlife Refuge in Texas that same night.

The helicopter idea originated with Johnny Lynch of the U. S. Fish and Wildlife Service. Participating was the privately owned Petroleum Bell-Helicopter Services, Inc., with base HQ at Lafayette Airport, La. Especially active and helpful were Frank Lee, base office manager and the two pilots, L. L. "Mac" McCombie and E. J. Smith.

On reaching Lafayette I was met by John Lynch in his Stinson L-5. Next day we were joined by Nick Schexnayder, Superintendent of the Society's Rainey Wildlife Sanctuary in Louisiana, who was eager to take part in the capture. We went up in one of the helicopters and made a "dry run," landing near an imaginary crane, leaping out with our nets, etc. We finally arranged for Nick and me to ride in one ship and

Lynch in another, from which he and Frank Lee could take photographs. Made numerous dry runs, Nick, who insisted on the honor of being the first out of the ship, trying his jump to pontoon and ground with the door open, door off its hinges, etc. We corrected details of sequence of action to start with nod from Mac when the pontoons were actually down, I to release safety belt, Nick to open door and leap to pontoon, from which he'd throw his net, I to follow on his heels with burlap, etc.

For two days Lynch and I rode the battered L-5 like hound dogs looking for a scent. No sign of the crane! You can imagine our thoughts—he was probably shot by this time! Then, early the next morning we found him! He was west of his usual haunts, in sawgrass near Blackfish Lake, which is just north of Lake le Bleu, between White Lake and Grand Lake. Without getting closer than three miles to him we circled off and "poured on the coal" all the way back to Lafayette.

A cold front was on its way down from Montana and the southerly breeze was picking up. Lots of clouds. We had a hasty conference and decided that it must be done that afternoon or

* Excerpts from a letter by Robert P. Allen to John H. Baker, President of the National Audubon Society, telling of the dramatic capture of the last wild whooping crane of the Louisiana marshes.

not at all. Loaded Nick and me in the first helicopter and Lynch and Frank Lee in the other. Then followed a solid hour of frustration. We couldn't flush the bird. With our gas supply getting low (they carry only two hours in a tank) we were about to give up when Smith, Lynch's pilot, said casually, "What's that over there, an egret or the crane?" It was *him*. From our ship we saw the other helicopter gain air speed and tilt over toward the marsh. It was between Bleu and Blackfish, over the sawgrass. Then Nick, as tense as a drawn bowstring beside me, shouted, "Look! To the right of them! That's him! That's him!" And there he was, streaking off to the north, flying low and making an air speed of just 45 m.p.h.

Mac "poured on the coal" and away we went. As we got on his tail, Smitty took his ship to 500 feet, keeping above and behind us as pre-arranged.

The crane turned off, rose in a beautiful *chandelle*, turned again and again. Finally we saw that he was going to land. His trailing feet dipped into the surface of a pond, his wings brushed the tops of the sawgrass. Nick and I made ready to jump. "This," said Nick, "is it!"

When the crane suddenly darted into an eight foot stand of dry sawgrass Mac stopped dead, hovered momentarily and set the helicopter down directly behind him, the right pontoon only 18 inches away. Nick was straining so hard on the safety belt that I had trouble releasing it. The door flew open and from the pontoon Nick leaped to the grass, with me behind him. Nets were unnecessary. In another second Nick was holding the crane's bill and wings and I had his legs and feet. We had him!

Bob Allen and Nick Schexnayder tenderly lift the whooping crane into the waiting hands of "Mac" McCombie, the pilot.

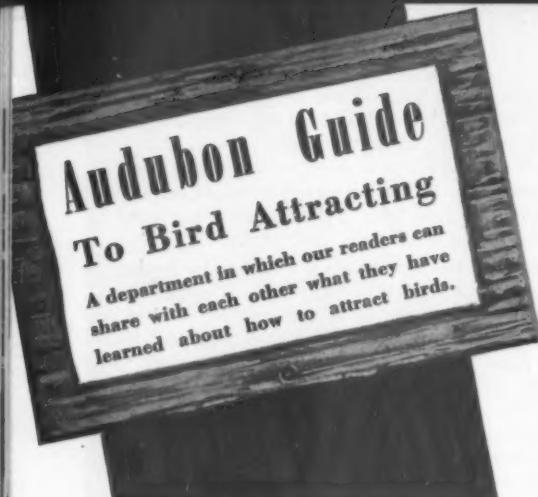


McCombie's magnificent flying made it easy and besides, Mac had told his eight-year-old boy that he would catch this huge bird so that it could be taken to a place where there were others of its kind and where it would be safe from harm. Said Mac, "I didn't dare come home and tell that boy, again, that we had failed."

We tied his legs loosely and slipped a burlap sack over his great wings. Then, laying him across our laps, and with Nick holding his head and talking to him soothingly, we started back to Abbeville, where the car waited for us to carry him to Texas. All night long we drove, the bird lying on the floor of the car, Nick stretched out beside him. Johnny and I took turns driving. In the middle of the night, between Galveston and Angleton, both Nick and John were snoring and at each sound the crane would answer with a low guttural talking note.

We slowed down at the other end so as to get Julian Howard out of bed (Sunday morning) at daybreak. He was one surprised refuge manager! Then we carried the bird to the East Shore Flats and released him from the new oil well road across Camp Pond. We hadn't thought of the fact that he was used only to fresh water. What could we expect from his drinking salt water? We didn't know and couldn't take a chance. Catching him again we returned to headquarters. There we made a decision, and all of us, Julian, Nick, Lynch and I are convinced that it was the only one we could have made. We hastily built a one-acre enclosure in a corner of a cattail marsh, with a pond of fresh water and a good natural food supply, and clipping the flight feathers of one wing, turned him loose. Julian and his wife, who is deeply interested, will augment the natural food with more killifishes, frogs and crayfish, which will be caught elsewhere and deposited in the pond. He will not want for proper food.

It was amazing to see how tame he became after a couple of hours in the new enclosure. Nick walked up and down with him, stroking his head and the glistening feathers of his back, talking to him while we finished the bracing of the fence. "Dr. Schexnayder," we would ask, "what sweet nothings are you whispering in that crane's ear?" And Nick would say, "Never mind, we understand each other, this bird and me, we understand each other." Nick caught tree frogs off the cattails and fed them to him and soon the crane was searching for food on his own. When we left he was walking around, with his dignity restored and his manner one of contentment.



Flower Gardens For Birds

A famed gardener offers some "flower recipes" that attract birds.

Flower and fruit photographs by Rocke.



By Robert S. Lemmon

IT is perfectly feasible to create and maintain a flower garden that satisfies our desire for variety, neatness and colorful blooming over a long period and, at the same time, provide one that is far more alluring to birds than one planned without particular regard for their tastes. A garden planned with special thought for its appeal to birds may be even more colorful than the general run of plantings, simply because it yields a greater quantity of flowers and seeds, and therefore of bird food.

Through the autumn, winter and early spring, particularly, seeds are a major food item for many birds. During these seasons you will see various sparrows and finches busily searching for seeds in a fair-sized flower border, the more so if it is backed by an informal hedge that affords them shelter from danger and perhaps a night roost as well. Unless the ground is snow-covered, the birds will be foraging in the litter of dead stalks; when the ground is buried under a white blanket they will search through whatever promising plant debris is still above the snow.

Most garden flower seeds are eaten by at least some species of birds, but certain kinds are definitely preferred, just as they are at the feeding station. Increasing the percentage of these favored kinds attracts increasing numbers of migrant or wintering birds that visit our gardens after the blossoms have gone their way and the seed harvest has dropped to the ground.

During the growing and flowering season, too, such a border has as marked an appeal to birds as it has to humans. However carefully you tend it, there are always many insects among the plants and on the ground, perhaps the ma-

READERS!

(In the forthcoming July-August issue, the bird-attracting department will consist of one or several excellent letters from Audubon Magazine readers, outlining their experiences in attracting birds. The editors have planned to devote at least one issue each year of the magazine's bird-attracting department to letters from readers, and invite you to become one of our regular contributing guest columnists of this department. Your letters will be printed in order of their receipt here and their excellence of content. Please address them, with photographs and sketches illustrating your planting arrangements, bird feeders, birdbaths, etc., to Audubon Magazine, 1000 Fifth Avenue, New York 28, N. Y.)

"The bird-attractiveness of a flower garden is affected not only by the kinds of plants it contains, but by the success with which you grow them."

jority of them not on the gardener's blacklist but all welcome additions to the larder of birds. A bird-count of your flower garden during this period will reveal not only the insectivorous species, but also those generally thought of as seed-eaters, now shifting their dietary habits. Such a census of my rather large flower border in Connecticut, compiled at intervals last summer, showed the following species: catbird, brown thrasher, chestnut-sided warbler, yellow warbler, yellowthroat, ovenbird, song sparrow, chipping sparrow, indigo bunting, goldfinch, eastern towhee, wood thrush, robin, bluebird, house wren, mourning dove, yellow-shafted flicker, phoebe, ruby-throated hummingbird and black-capped chickadee. Doubtless there were others, as the time available for observation was limited.

The bird-attractiveness of a flower garden is affected not only by the kinds of plants it contains but also by the success with which you grow them. The healthiest, most vigorous plants are going to produce the most seeds, and this they can do only if the soil is properly drained, amply supplied with humus (leafmold and thoroughly decomposed manure with other broken-down vegetal and animal matter) and reasonably rich in plant nutrients such as are most readily provided by bonemeal and general "commercial" fertilizers. Plants in such soil will withstand the strain of drought far better than they would in a lean, poor one, but even so it is well to be prepared for substantial artificial watering if need be. Several hours of direct sunlight daily is a virtual "must," as comparatively few satisfactory flowering plants will succeed where there is much shade.

For attractiveness to human eyes, arrange your plants so that the tallest are at the back of the planting and the rest grading downward to the

front so that the lowest of all will be nearest to the point from which the bed as a whole will be seen. Also, avoid hit-or-miss placing of the various kinds lest you get a spotty, confused jungle of plants replete with color clashes. I am not by any means recommending a formal, stereotyped pattern, which can be very monotonous unless designed with much experience and judgment. Your objective should be irregular blocks of varying size, each containing from three to a dozen plants of the same kind and color and fitting closely among its neighbors, rather than a miscellaneous mixing of single plants. As a general working rule, individual plants should be spaced half as far apart as their own mature height, so that they may have room to develop normally.

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The seeds of coreopsis are favored by goldfinches and other seed-eating birds. Photograph of goldfinch by Hal H. Harrison

Catbirds and other fruit-eating birds are fond of the drupes of silverberry (*Elaeagnus argentea*), a shrub or small tree. Photograph of catbird by Allan D. Cruckshank.



In addition to a main flower planting such as this, there can be many smaller, subsidiary ones in those odd nooks and corners which virtually all home properties provide.

The ideal garden to attract birds (and humans, too) contains both perennials and annuals. The perennials require at least a year to reach full effectiveness, unless you go to the expense of buying well-developed nursery-grown plants in early spring. For first-year results, however, annuals are an excellent answer, for if their seeds are sown early in May, they should start flowering some time in July and keep going full blast until frost. Annuals have the further advantage of succeeding practically anywhere in the United States and Canada, since they live for only one season. Consequently the gardener does not have to worry about their enduring the coldness of the winter months.

The accompanying table of annual and perennial species with a few woody plants as good adjuncts, together with the bird groups attracted to them, is offered as a basis for our sort of "bird-and-man garden." I have not mentioned the interest that your flower garden will have for insectivorous birds, which, from spring to autumn, may be taken for granted. If you are a gardener you will, I think, find many of your own favorite flowers on this list. As for the birds—they will like them all!

Perennials and Biennials

Bee-balm (Monarda).....	hummers
Campanula.....	seed-eaters, hummers
Chrysanthemum.....	seed-eaters, seed-eaters, hummers
Columbine.....	hummers
Coreopsis.....	seed-eaters, hummers
Daylily.....	hummers
Delphinium.....	hummers
Fuchsia.....	hummers
Geranium.....	hummers
Gladiolus.....	hummers
Helianthus.....	seed-eaters, hummers
Hollyhock.....	hummers
Heuchera (coral-bell).....	hummers
Lilies (all).....	hummers
Phlox.....	seed-eaters, hummers
Pinks (dianthus).....	seed-eaters, hummers
Sage (salvia).....	seed-eaters, hummers
Swamp-mallow.....	hummers
Sweet-william.....	seed-eaters, hummers

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Hummingbirds are attracted to morning glories, trumpet-vines and other tubular-shaped flowers. Photograph of ruby-throated hummingbird by Edward J. Blood.

Annuals

Calendula	seed-eaters
Calopsis	seed-eaters
Cardinal-climber	hummers
Cosmos	seed-eaters
Cypress-vine	hummers
Four o'clock	seed-eaters
Gaillardia	hummers
Larkspur	seed-eaters
Marigold	seed-eaters
Morning-glory	hummers
Nasturtium	hummers
Petunia	seed-eaters, hummers
Phlox Drummondii	seed-eaters, hummers
Scabiosa	seed-eaters, hummers
Scarlet runner bean	hummers
Scarlet sage	hummers
Snapdragon	seed-eaters, hummers
Cleome	hummers
Sunflower (small)	seed-eaters
Verbena	seed-eaters
Zinnia	seed-eaters

Shrubs and Woody Vines

Azaleas	hummers
Kolkwitzia	hummers
Buddleia	hummers
Honeysuckle (bush)	fruit-eaters, hummers
Honeysuckle (Hall's)	hummers, fruit-eaters, hummers
Trumpet-vine	hummers
Weigela	hummers

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Book Notes

By John K. Terres

WILDLIFE FOR AMERICA

By Edward H. Graham and William R. Van Dersal, Oxford University Press, N. Y., 1949. 6½ x 9¼ in., 109 pp. Illus. with photographs. \$2.50.

Two Federal biologists, both experts in botany, wildlife, and soil conservation again have combined their writing talents to produce a book that should appeal to both adults and children. The layout is one page of text facing a full-page photograph. The pictures are excellent and with the text matter leads from single page headings of *Wildlife in the Beginning* to *Land Pattern*, the last page of the book. In a single page of text it is difficult to tell the story of, say, the food of animals, hunting and fishing, birds as friends of the farmer, the role of hawks, homes for waterfowl, the use of field borders by wild creatures, and many other subjects pertaining to man's use, or misuse, of the land and its wildlife. That the authors have done so attests to their success as scientists who can write clearly and simply of the conservation practices with which they have been associated for the past 15 years.

STORIES IN ROCKS

By Henry Lionel Williams, Henry Holt and Company, New York, 1948. 5½ x 8 in., 151 pp. Illus. with line drawings. Indexed. \$3.00.

First in a series of science books that the author has planned for boys and girls, the story of our earth and its geology told simply and directly. From "How the Earth Began" he takes us through chapters telling how volcanoes, mountains and geysers are born; how minerals, coal deposits and oil are formed. A book that should be an interesting introduction to geology for adults as well as for

children. There is a glossary with phonetic spellings for each scientific term to teach correct pronunciation.

The FIRST BOOK OF BUGS

By Margaret Williamson, Franklin Watts, Inc., New York, 1949. 8¾ x 7¼ in., 45 pp. Illus. by the author. \$1.50.

Margaret Williamson, author-artist, has written a delightful book for children about insects. How crickets make music, how fireflies light, how a fly can stand upside down, how spiders weave their silky webs, and many other fascinating insect ways are simply described. Chock-full of colorful illustrations, this is an excellent introduction to the insect world that will be enjoyed by every child.

ANIMAL WEAPONS

By George F. Mason, William Morrow and Company, New York, 1949. 5 x 8½ in., 94 pp. Illus. with sketches by the author. Indexed. \$2.00.

George Mason, author-naturalist and artist is on the staff of the American Museum of Natural History. This is the fourth in a series of books by the author on natural history and makes a splendid addition to his "Animal Tracks," "Animal Homes," and "Animal Sounds."

There are interesting chapters on various types of animal weapons, how they are used in defense, and for food-getting. Animals from insects to whales are treated and many fascinating stories of the use of their weapons add to the interest of the book. Profusely illustrated, a good popular reference for both young and adult readers.

THE WISE ONE

By Frank Conibear, William Sloane Associates, New York, 1949. 5½ x 6½ in., 265 pp. Illus. with sketches. \$2.75.

Frank Conibear, a fur trapper in the Canadian Northwest for 32 years, is familiar with the wild-life of that vast wilderness. "The Wise One" is a delightfully written narrative about a black beaver. From its early life when the young beaver, "the wise one," was orphaned, and through its exciting struggles against otters, birds, a wolver-

ine and man, the reader becomes intimately acquainted with the ecology of this fascinating creature. Interspersed with Indian lore and illustrated with sketches, this book will be enjoyed by everyone interested in animals.

BIRDS IN YOUR BACK YARD

By Ted S. Pettit, Harper & Brothers, New York, 1949. 5½ x 8 in., 210 pp. Illus. with drawings by George Grelle and Donald Ross. Indexed. \$3.00.

Ted Pettit is on the staff of the National Council, Boy Scouts of America, and previously had written "Book of Nature Hobbies." From many years of experience in attracting and watching birds, the author tells how to get more enjoyment out of your bird hobby. "Birds in Your Back Yard" contains information on planting, birdbaths, feeders, birdhouses and photography. Here is a practical guide for every section of the country which describes how more than 100 species of birds can be attracted to your yard in a single year. Well-illustrated with drawings and photographs.

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ABOUT THE AUTHORS

Edith R. McLeod (*Mrs. Sphex*), an Oregon housewife, is a music teacher by profession without degrees in nature study, "except from the University of Outdoors," where she has studied since she was six years old. Her eyes, books, and an intense curiosity have taught her much.

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Ralph W. Dexter (*Banding Chimney Swifts*) is Professor of Biology, Kent State University, Kent, Ohio, where he has been teaching ecology and field zoology since 1937. Born and raised in Gloucester, Massachusetts, with degrees from Massachusetts State College and the University of Illinois, Dr. Dexter's bird banding and field studies of fairy shrimps are his hobbies.

In 1923, after graduating from Louisiana State University, where she majored in English and journalism, Ruth Harris Thomas (*Crip, Come Home!*) went with the *Arkansas Gazette*, Little Rock, as a reporter and feature writer. After her marriage in 1927 to Rowland Thomas, she gave up newspaper work for a home and 15 acres just outside Little Rock. There she devoted herself to studying birds, raising flowers, dogs and milk goats, with birds always her major love.

"My bird study was lone-handed," writes Mrs. Thomas, "with no guides except books, the old *Bird-Lore* and the scientific journals. Later, Margaret Morse Nice, the ornithologist of song sparrow fame, gave me much encouragement, and with her help, I published notes in *The Auk*, *Bird-Banding* and *The Wilson's Bulletin*, chief of these being a study of the eastern bluebird."

In 1937, Mrs. Thomas started banding birds and thereafter was the biographer for "Crip," and several other extraordinarily long-lived birds that returned each year to her yard. During the declining years of Crip's life, many readers of her weekly newspaper column urged Mrs. Thomas to trap and cage Crip for a safe old age, but this she refused to do. Thus the old

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thrasher, "lived out his life under his own piece of sky."

Edwin I. Stearns (*Pampering Barn Owls*) is president of New Jersey's Urner Ornithological Club. He began his birding adventures 27 years ago with the late William J. Rusling, formerly National Audubon Society warden at Cape May, New Jersey. Bird photography interested Stearns for a while, but he abandoned it in 1927 after a trip with Roger Tory Peterson in which Stearns was left on a sandbar photographing black skimmers. A storm blew up, Roger Peterson lost his way to the bar in their rowboat, and Mr. Stearns was finally rescued by the Coast Guard. Later, to his satisfaction, he found that he could rent films from the National Audubon Society for his bird lectures that were far better than any that he could take.

Robert S. Lemmon (*Flower Gardens for Birds*) has been managing editor of *The Home Garden Magazine* since 1943. His bird-watching started at the age of eight under the influence and guidance of Dr. Frank M. Chapman, then an old family friend and near neighbor of the Lemmons in Englewood, New Jersey. A graduate of Yale, Mr. Lemmon joined the Samuel N. Rhoades expedition to Ecuador, was managing and garden editor of *House and Garden Magazine* for 22 years, and during the 1930's, founded his own magazine, *"Real Gardening,"* which he discontinued during World War II. Mr. Lemmon has developed methods for successfully raising many species of our rarer and seriously threatened wildflowers which he will tell about in a future article for *Audubon Magazine*.

Richard B. Fischer (*Beginners Can Photograph Birds*) is an ardent ornithologist who has been especially active in the New York City region. Dick has a master's degree in biology and taught biology and science for almost five

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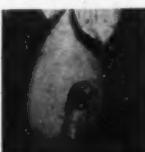
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years in Long Island and Westchester County schools. In 1937 he saw Marie Beale's bird-banding station at Elmhurst, Long Island, and two years later he had his own. Dick has now banded

more than 6,000 birds of 110 species, but his greatest interest is in chimney swifts which will be the subject of his thesis for a Ph.D. at Cornell University during the current year.

LETTERS—Continued from Page 141

tent biologist, are such that the entire family group may take part.

The camp, held on the shores of Lake Terra Alta, Terra Alta, West Virginia, will extend from July 9 to July 16. Campers will be housed in family tents; meals will be served family style in a quonset hut.

Admittedly an experiment, the camp is one of many activities of the Institute designed to contribute to more abundant living. It is an outgrowth of the feeling that nature study is one of the few hobbies in which an entire family group can participate.

Queries concerning the camp should be addressed to:

Department of Nature Education
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Birds of Prey Article Effective

I don't know how much good the article *A Fair Deal for Our Birds of Prey* (*Audubon Magazine*, November-December 1949) did in other sections of the country, but it certainly

made a difference around here. Ordinarily, at this time of year (April) it would be an easy matter to count 200 hawks hanging on fences within a five mile radius of town. This year I have found one hawk strung up—and it was a Cooper's.

The president of the local rifle club got a copy of the reprint somewhere and the hawk charts are posted on the walls of their gallery.

A group from a neighboring town that sponsors a pest hunt each spring, that usually ends up by being a hawk hunt, came to me with the request for information about hawks. I loaded them down with books and pamphlets; they kept them for over a month, and as a result have stricken hawks off their list of pests.

RICHARD STUART PHILLIPS
Findlay, Ohio

Editors' Note: Reprints of "A Fair Deal for Our Birds of Prey" are still available at five cents each (three cents apiece for 100 or more) from the National Audubon Society, 1000 Fifth Ave., N. Y., 28, N. Y.

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